U.S. Department
of Transportation

Federal Highway Administration

National Bridge Inventory Information System

EDIT / UPDATE PROGRAM

Office of Bridge Technology

December 1997

TABLE OF CONTENTS

1.0 Editing and Updating Data

1.1 Overview 1
1.2 The Edit/Update Program 2
1.3 The Reformat Program 5
1.4 The Sort Program 5
1.5 The Merge Program 5
1.6 ITEM Edits 5
1.7 ITEM Crosscheck Edits 26
1.8 ITEM Reasonableness Edits 33
1.9 ITEM Reasonableness Crosscheck Edits 37
1.10 Underpass Record Edits - General 41
1.11 ITEM Edits Unique to Underpass Records 41
1.12 Underpass Record Crosscheck Edits - General 41
1.13 ITEM Crosscheck Edits Unique to Underpass Records 41
1.14 ITEM Reasonableness Edits Unique to Underpass Recs. 42

2.0 Using the PC Version of the Edit/Update Program

2.1 Installing the Edit/Update Program on the PC 43
2.2 Running the Edit/Update Program 44
2.3 Files Used by the Edit/Update Program 44

Appendix A - Job Flows

Appendix B - Sample Listing of JCL

Appendix C - Data Element Listing

Appendix D - Computation of ITEMS Deduct, Status, and Suff. Rating

Appendix E - Sample Report Output

1.0 Editing and Updating Data

1.1 Overview

This manual is designed to assist in the implementation of the 1995 Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (Guide). This is the first coding guide to use metric values for the unit of measure Items.

This package contains the Edit/Update program that is required to be used on the states' bridge inventory data before it is forwarded to the FHWA for final aggregation into the National Bridge Inventory (NBI). Sample Job Control Language (JCL) set-ups are included on the enclosed mini-tape or floppy disk and in Appendix B.

A PC version of the Edit/Update has been provided on 3.5" floppy disk. Documentation on the installation and use of this program is provided in Chapter 2.

The Edit/Update system is comprised of four (4) programs. The files sent to run the Edit/Update on the mainframe include the COBOL source code for these four programs:

LE21M02A - the Edit/Update program
LE21M02B - the reformat program
LE21M02S - the sort program
LE21M02C - the merge program

The COBOL programs must be compiled using a compiler suitable for your hardware. The programs were coded to provide generic COBOL source code compatible with most compilers. The JCL streams must be tailored for your site. The JCL included in this package, and Appendices A and B, can be used as guides.

The dataset containing the Job Control Language (JCL) statements needed to execute the Edit/Update is also included on the tape:

LE21JOBB - the reformat, sort, merge, and Edit/Update

Before running this JCL, the conversion program must be run using jobstream LE21JOBA. Instructions for running the conversion program are contained in the write-up accompanying this manual, "Conversion Program".

The design flow of the system is to pass a State's master tape through the Edit/Update program, producing a new master file and/or fatal and normal 80-character bridge error files. The 80-character error files are then edited using your text editor. Next, they are modified into 433-character records, the extra character being the function code ITEM FC. These 433-character records are sorted by record-ID, then merged with the master file. This master file is put through the next Edit/Update run. The process is repeated until all the errors you wish to correct have been corrected. Then, this output file is ready to be sent to the FHWA. See Appendix A.

Much of this reformatting and merging is transparent to the user and is explained briefly in this document. For the most part, using the Edit/Update system is very straightforward. Just correct your error file(s) and resubmit jobstream LE21JOBB. Another error file will be produced (two error files, if there were fatal errors). Correct the errors and resubmit LE21JOBB. Continue this "loop" until all errors are corrected and you are satisfied with the master file as it appears.

It is not required that all four programs in the LE21JOBB jobstream be run. Some States may chose to run only the Edit/Update to produce an error listing, then correct the Items in error using whatever update capability exists at their site for
their bridge master file.

1.2 The Edit/Update Program

The National Bridge Inventory Information System Edit/Update program is based on the December 1995 Coding Guide. For each ITEM, as appropriate, the program can provide ITEM edits, crosscheck edits, and/or reasonableness edits. Each of these edits is specified in this document. This program will provide the capability of skipping the edits for any given ITEM (see Appendix B - LE21JOBA and/or LE21JOBB - bypass.item.nbrs.)

Each run will produce reports showing fatal and non-fatal errors. Also produced are files containing the records in error. These error files will have thirty-one (80-character) lines of bridge data per record. The lines are 80-characters long so they can be easily edited by any text editor.

Below is an example of an 80-character per line bridge record thirty-one (31) lines long as it would appear in the error file. See Appendix C for a layout of the 432-character bridge record.

```
1; = \999\            8; = \123456789012345\                5A; = \1\
5B; = \6\             5C; = \1\        5D; = \00000\        5E; = \0\
2; = \0A\             3; = \013\       4; = \00000\
6A; = \MONICA JOHNSON BLVD       \     6B; = \ \
7; = \JENNIFER PKWY     \              9; = \5.0 K   TO I-495         \
10; = \9999\          11; = \0007852\  12; = \ \
13A; = \       \      13B; = \  \      16; = \00000000\
17; = \000000000\     19; = \014\      20; = \3\             21; = \66\
22; = \66\            26; = \08\       27; = \1959\          28A; = \04\
28B; = \02\           29; = \027400\   30; = \1993\          31; = \4\
32; = \0165\          33; = \2\        34; = \25\            35; = \0\
36; = \1NNN\          37; = \5\        38; = \N\             39; = \0000\
40; = \00000\         41; = \A\        42A; = \1\            42B; = \1\
43A; = \4\            43B; = \03\      44A; = \0\            44B; = \00\
45; = \004\           46; = \0000\     47; = \196\           48; = \00457\
49; = \001658\        50A; = \000\     50B; = \000\          51; = \0197\
52; = \0207\          53; = \9999\     54A; = \H\            54B; = \1524\
55A; = \H\            55B; = \006\     56; = \006\           58; = \7\
59; = \6\             60; = \6\        61; = \N\             62; = \N\
63; = \ \             64; = \435\      65; = \ \             66; = \326\
67; = \6\             68; = \7\        69; = \3\             70; = \5\
71; = \N\             72; = \8\        75A; = \35\           75B; = \1\
76; = \      \        90; = \1292\     91; = \24\            92A; = \Y12\
92B; = \N  \          92C; = \Y24\     93A; = \1292\         93B; = \   \
93C; = \1192\         94; = \000613\   95; = \      \
96; = \000613\        97; = \1994\     98A; = \   \          98B; = \  \
99; = \               \                100; = \0\            101; = \N\
102; = \2\            103; = \ \       104; = \0\            105; = \ \
106; = \1982\         107; = \1\       108; = \900\          109; = \01\
110; = \0\            111; = \ \       112; = \Y\            113; = \N\
114; = \030140\       115; = \2013\    116; = \    \         FC; = \MOD\%
```

The logical organization of the data for a data ITEM in an error file is:

item number item delimiter =

beginning data delimiter data value ending data delimiter

ITEM Numbers are the numbers '1' to '116' with the letters 'A', 'B', 'C', etc., as found in the record description (e.g., 5A, 5B, 108A, etc.). See Appendix C. **Data value** is the value that the edit program found for the corresponding ITEM number. **A delimiter** is a character used by programs to separate entities in a file from one another. This character **must never appear in the bridge data**. The delimiters may be chosen from the following characters:

@ # ~ $ % & + ^ : ; < > ? " / \ | { } ! '

The least used characters that appear on your keyboard make good delimiters. The Edit/Update program uses four (4) delimiters that are shown below with their default values:

Delimiter	Default values (used in above example)
item	;
data start	\
data end	\
record end	:

If the above default delimiters are acceptable, no delimiter control cards are necessary. You can include or exclude any delimiter you choose. While it is recommended that the ITEM delimiter be different than the data start and data end delimiter, they can be the same. It is also recommended that the data start and data end delimiter are the same. This will make the error file more readable. The record end delimiter **must be different** than the other delimiters. To see an example of ITEM delimiter cards, see the sample JCL in Appendix B.

WARNING: It is very important that none of the delimiters appear anywhere in your data. This will cause very unpredictable results with your Edit/Update run. ITEMS 6, 7, and 9 are textual and therefore most likely to contain values which may conflict with the delimiters you have selected. If possible, do a scan of your master file before running the Edit/Update to ensure none of your delimiters appear anywhere in the data.

Function Code Item

Along with the bridge ITEMS contained in a bridge record, your error file will contain a special function code ITEM FC for the reformat and merge programs to use. This code will not be permanently retained in the bridge record. The function code tells the update and merge programs what action to take for the bridge record. The allowable ITEM FC values and actions taken are:

ADD - add this record to the new master file.

DEL - delete this record from the master file.

MOD - update/modify the ITEMS present in this bridge record by replacing the ITEMS in the old master record with the ITEMS in the text edited file. This is the default.

Edit/Update Program Parameters

Through control cards, the following parameters are passed to the Edit/Update system:

- Delimiters for ITEMS, data values, and records;
- Printed lines per page on the error report;
- The number of errors you wish to see per Edit/Update run;
- The user's State code;
- The type of edits you wish to be done on the ITEM(S); and
- Any ITEM(S) you wish to bypass editing.

Refer to Appendix B to see how these control cards are coded.

1.3 The Reformat Program

After you have manually corrected the 80-character error file(s) with your text editor, this program reformats the error files into 433-character records. The extra character is the function code ITEM FC indicating an Add, Modify, or Delete. This ITEM appears in the error file and may be changed like any other ITEM.

Jobstream LE21JOBB automatically executes the Reformat Program twice. Once for the fatal error file and once for the non-fatal error file. If no fatal errors were found, the fatal error file will be empty. No modification to LE21JOBB is necessary.

1.4 The Sort Program

The output files from the two (2) reformat runs are input to the sort program. They are sorted by record-ID into a single 433-character transaction file.

1.5 The Merge Program

The 433-character transaction file is merged with the 432-character master file to produce one (1) 432-character file. When the merge takes place, the function code ITEM (FC) in the transaction file is checked to determine whether the transaction is to add, modify, or delete a master record. The function code ITEM is then discarded.

1.6 ITEM Edits

Listed below are the individual ITEM edits performed by the Edit/Update program, along with their associated error messages.

The error message generated is output on one line of either the Fatal Error or Data Error Report. The line lists type of edit, ITEM Number of the ITEM in error, data value of the ITEM, and an ITEM-specific error message. Appendix E contains an example.

ITEM 1 - State Code

Because the programs in this package are to be used by many States, you must set your State code in the jobstream using a parameter input record. If the entered State code is valid, the appropriate region code is added. This composite State-region value is then used to validate ITEM 1 of your input records. If a mismatch is found, the fatal error flag for this record is set and an error message is generated. **If a file containing records from multiple States is entered, use 99 for a State code.** The fatal error flag causes the bridge record to be rejected (not written to the new master file) and the record to be written to the fatal error file for manual editing. As the rest of the ITEM edits are described, only the ITEM-specific portion of the error message is listed. The specific error message for ITEM 1 is:

- STATE/REGION CODE NOT VALID - FATAL ERROR

ITEM 2 - State Highway Department District

ITEM 2 must be entered and must be a numeric code. If an error is found, the ITEM-specific message is:

- HIGHWAY DISTRICT IS NOT A VALID NUMBER

ITEM 3 - County (Parish) Code

ITEM 3 must be entered and must be a numeric code. If an error is found, the ITEM-specific message is:

- COUNTY CODE IS NOT A VALID NUMBER

ITEM 4 - Place Code

ITEM 4 must be entered and must be a numeric code. If an error is found, the ITEM-specific message is:

- PLACE CODE IS NOT A VALID NUMBER

ITEM 5 - Inventory Route

There is no ITEM edit at this level for ITEM 5. ITEM 5 is edited by subparts 5A through 5E.

ITEM 5A - Record Type

ITEM 5A must be entered, is part of the record-ID and has a specified set of legal values: '1', '2', and 'A' through 'Z'. If an error is found, the ITEM-specific message is:

- INVENTORY ROUTE IS NOT A VALID VALUE - FATAL ERROR

Since this ITEM is part of the record-ID, the fatal error flag is set. The fatal error flag causes the bridge record to be rejected; the record is formatted in the fatal error file for manual editing.

ITEM 5B - Route Signing Prefix

ITEM 5B has a specified set of legal values: '1' through '8'. The edit program checks the ITEM for a numeric range and then for a VALID-ITEM-5B. If an error is found, the ITEM-specific message is:

- ROUTE SIGNING PREFIX IS NOT VALID

ITEM 5C - Designated Level of Service

ITEM 5C has a specified set of legal values: '0' through '4' and '6' through '8'. The edit program checks for a numeric range and then for a VALID-ITEM-5C. If an error is found, the ITEM-specific message is:

- LEVEL OF SERVICE IS NOT VALID

ITEM 5D - Route Number

This ITEM must be specified and is an alphanumeric value. The edit program checks for spaces or low values. If spaces or low values are found, the ITEM-specific message is:

- ROUTE NUMBER IS NOT ENTERED

ITEM 5E - Directional Suffix

ITEM 5E has a specified set of legal values: '0' through '4'. The edit program checks for a numeric range and a VALID-ITEM-5E. If an error is found, the ITEM-specific message is:

- DIRECTIONAL SUFFIX IS NOT VALID

ITEM 6 - Features Intersected

There is no ITEM edit at this level for ITEM 6. ITEM 6 is edited by subparts 6A and 6B.

ITEM 6A - Features Intersected

Free-form description field. There are no ITEM edit checks except that it must not be blank. The ITEM-specific message is:

- FEATURES INTERSECTED MUST BE ENTERED

ITEM 6B - Critical Facility Indicator

ITEM 6B has a specified set of legal values: Blank (' ') or an asterisk (*). The edit program checks for a VALID-ITEM-6B. If an error is found, the ITEM-specific message is:

- CRITICAL FACILITY INDICATOR IS NOT VALID

ITEM 7 - Facility Carried by Structure

Free-form description field. There are no ITEM checks except that it must not be blank. The edit program checks for the presence of all blanks. If this error is found, the ITEM-specific message is:

- THE FACILITY CARRIED MUST BE ENTERED

ITEM 8 - Structure Number

ITEM 8 is part of the record-ID and must not be blank. This is an alphanumeric field and must be unique for each bridge within the State. If an error is found, the ITEM-specific message is:

- STRUCTURE NUMBER IS NOT ENTERED - FATAL ERROR

or:

- STRUCTURE NUMBER IS NOT UNIQUE - FATAL ERROR

The fatal error flag causes the bridge record to be rejected (not written to the new master file) and the record to be written to the fatal error file for manual editing.

ITEM 9 - Location

This is a free-form description field. There are no ITEM checks for this field except that it must not be blank. The edit program checks for the presence of all blanks. If this error is found, the ITEM-specific message is:

- THE LOCATION MUST BE ENTERED

ITEM 10 - Inventory Route, Minimum Vertical Clearance

This ITEM is entered in meters. However, when there is no restriction, it is entered as '9999'. The edit program first checks for a numeric range. The ITEM-specific message is:

- VERTICAL CLEARANCE IS NOT A VALID NUMBER

ITEM 11 - Kilometer Point

ITEM 11 must be a numeric code. The edit program checks for a numeric range. If an error is found, the ITEM-specific message is:

- KILOMETERPOINT IS NOT A VALID NUMBER

ITEM 12 - Base Highway Network

ITEM 12 must be a 0 or 1. If an error is found, the ITEM-specific message is:

- BASE HIGHWAY NETWORK MUST BE CODED 0 OR 1

ITEM 13A - LRS Inventory Route

ITEM 13A must not contain any blanks when coded. If an error is found, the ITEM-specific message is:

- LRS INV. RTE CANNOT CONTAIN A BLANK WHEN CODED

ITEM 13B - LRS Subroute Number

ITEM 13B must be a numeric code. The edit program checks for a numeric range. If an error is found, the ITEM-specific message is:

- LRS SUBROUTE NUMBER MUST BE NUMERIC

ITEM 16 - Latitude

ITEM 16 must be a numeric code. The edit program checks for a numeric range. If an error is found, the ITEM-specific message is:

- LATITUDE IS NOT A VALID NUMBER

When STATE CODE was validated, minimum and maximum State latitudes were set. The edit program checks ITEM 16 for all zeroes; if it's not, the program checks latitude for being within bounds. The ITEM-specific error message is:

- LATITUDE IS NOT WITHIN THE STATE BOUNDARIES

ITEM 17 - Longitude

ITEM 17 must be a numeric code. The edit program checks for a numeric range. If an error is found, the ITEM-specific message is:

- LONGITUDE IS NOT A VALID NUMBER

When STATE CODE was validated, minimum and maximum longitude of the State were set. The edit program checks ITEM 17 for all zeroes; if it's not the program checks longitude for being within bounds. If an error occurs, the ITEM-specific error message is:

- LONGITUDE IS NOT WITHIN THE STATE BOUNDARIES

ITEM 19 - Bypass, Detour Length

ITEM 19 must be a numeric code. The edit program checks for a numeric range. If an error is found, the ITEM-specific message is:

- DETOUR IS NOT A VALID NUMBER

ITEM 20 - Toll

ITEM 20 has a specified set of legal values: '1' through '5'. The edit program checks for a numeric range and then for a VALID-ITEM-20. If an error is found, the ITEM-specific message is:

- TOLL CODE IS NOT VALID

ITEM 21 - Maintenance Responsibility

ITEM 21 has a specified set of legal values: '01' through '04', '11', '12', '21', '25', '26', '27', '31', '32', '60', '62', '63', '64', '66', '67', '68', '69', '70', '71', and '80'. The edit program checks for a numeric range and then for a VALID-ITEM-21. If an error is found, the ITEM-specific message is:

- MAINTENANCE RESPONSIBILITY IS NOT VALID

ITEM 22 - Owner

ITEM 22 has a specified set of legal values: '01' through '04', '11', '12', '21', '25', '26', '27', '31', '32', '60', '62', '63', '64', '66', '67', '68', '69', '70', '71' and '80'. The edit program checks for a numeric range and then for a VALID-ITEM-22. If an error is found, the ITEM-specific message is:

- OWNER CODE IS NOT VALID

ITEM 26 - Functional Classification of Inventory Route

ITEM 26 has a specified set of legal values: '01', '02', '06', '07', '08', '09', '11', '12', '14', '16', '17', and '19'. The edit program checks for a numeric range and then for a VALID-ITEM-26. If an error is found, the ITEM-specific message is:

- FUNCTIONAL CLASSIFICATION IS NOT VALID

ITEM 27 - Year Built

ITEM 27 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- YEAR BUILT IS NOT A VALID NUMBER

ITEM 27 is checked for the first two digits '18', '19', or '20'.

- YEAR BUILT CENTURY IS NOT VALID

ITEM 28 - Lanes On and Under

There is not an ITEM edit at this level for ITEM 28. ITEM 28 is edited by subparts 28A and 28B.

ITEM 28A - Lanes On

ITEM 28A must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- TRAFFIC LANES ON IS NOT A VALID NUMBER

If 'ITEM 5A = 1', ITEM 28A must be greater than '00'. If an error occurs, the ITEM-specific message is:

- LANES FOR AN INVENTORY ROUTE(5A=1) CANNOT BE ZERO

ITEM 28B - Lanes Under

ITEM 28B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- TRAFFIC LANES UNDER IS NOT A VALID NUMBER

ITEM 29 - Average Daily Traffic

ITEM 29 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- AVERAGE DAILY TRAFFIC IS NOT A VALID NUMBER

ITEM 30 - Year of Average Daily Traffic

ITEM 30 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- YEAR OF AVERAGE DAILY TRAFFIC IS NOT A VALID NUMBER

The edit program also checks if the data is greater than the current year. If it is, the ITEM-specific message is:

- YEAR OF AVERAGE DAILY TRAFFIC IS IN THE FUTURE

ITEM 31 - Design Load

ITEM 31 has a specified set of legal values: '0' through '9'. The edit program checks for a numeric range and a VALID-ITEM-31. If an error is found, the ITEM-specific message is:

- DESIGN LOAD IS NOT A VALID CODE

ITEM 32 - Approach Roadway Width

ITEM 32 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- APPROACH ROADWAY WIDTH IS NOT NUMERIC

ITEM 33 - Bridge Median

ITEM 33 has a specified set of legal values: '0' through '3'. The edit program checks for a numeric range and then for a VALID-ITEM-33. If an error is found, the ITEM-specific message is:

- BRIDGE MEDIAN CODE IS NOT VALID

ITEM 34 - Skew

ITEM 34 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE SKEW ANGLE IS NOT NUMERIC

ITEM 35 - Structure Flared

ITEM 35 has a specified set of legal values: '0' or '1'. The edit program checks for a numeric range and then for a VALID-ITEM-35. If an error is found, the ITEM-specific message is:

- THE STRUCTURE FLARED INDICATOR IS NOT A VALID CODE

ITEM 36 - Traffic Safety Features

ITEM 36 is edited by subparts 36A through 36D.

ITEM 36A - Bridge Railings

ITEM 36A has a specified set of values: '0', '1', and 'N'. The edit program checks for a VALID-ITEM-36A. The error message is:

- THE BRIDGE RAILINGS CODE IS NOT VALID

ITEM 36B - Transitions

ITEM 36B has a specified set of legal values: '0', '1', and 'N'. The edit program checks for a VALID-ITEM-36B. If an error is found:

- THE TRANSITION CODE IS NOT VALID

ITEM 36C - Approach Guardrail

ITEM 36C has a specified set of legal values: '0', '1', and 'N'. The edit program checks for a VALID-ITEM-36C. If an error is found, the ITEM-specific message is:

- THE APPROACH GUARDRAIL CODE IS NOT VALID

ITEM 36D - Approach Guardrail Ends

ITEM 36D has a specified set of legal values: '0', '1', and 'N'. The edit program checks for a VALID-ITEM-36D. If an error is found, the ITEM-specific message is:

- THE APPROACH GUARDRAIL END CODE IS NOT VALID

ITEM 37 - Historical Significance

ITEM 37 has a specified set of legal values: '1' through '5'. The edit program checks for a numeric range and then for a VALID-ITEM-37. If an error is found, the ITEM-specific message is:

- HISTORICAL SIGNIFICANCE CODE IS NOT VALID

ITEM 38 - Navigation Control

ITEM 38 has a specified set of legal values: '0', '1', and 'N'. The edit program checks for a VALID-ITEM-38. The error message is:

- THE NAVIGATION CONTROL CODE IS NOT VALID

ITEM 39 - Navigation Vertical Clearance

ITEM 39 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE NAVIGATION VERTICAL CLEARANCE IS NOT NUMERIC

ITEM 40 - Navigation Horizontal Clearance

ITEM 40 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE NAVIGATION HORIZONTAL CLEARANCE IS NOT NUMERIC

ITEM 41 - Structure Open, Posted, or Closed to Traffic

ITEM 41 has a specified set of legal values: 'A', 'B', 'D', 'E', 'G', 'K', 'P', and 'R'. The edit program checks for a VALID-ITEM-41. If an error is found, the ITEM-specific message is:

- THE STRUCTURE OPEN CODE IS NOT VALID

ITEM 42 - Type of Service

ITEM 42 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE TYPE OF SERVICE CODE IS NOT NUMERIC - ON AND/OR UNDER

ITEM 43 - Structure Type, Main

There is no ITEM edit at this level for ITEM 43. ITEM 43 is edited by subparts 43A and 43B.

ITEM 43A - Kind of Material and/or Design

ITEM 43A must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE KIND OF MATERIAL CODE IS NOT NUMERIC

ITEM 43B - Kind of Design and/or Construction

ITEM 43B has a specified set of legal values: '00' through '19', '21', and '22'. The edit program checks for a numeric range and then for a VALID-ITEM-43B. If an error is found, the ITEM-specific message is:

- THE TYPE OF DESIGN CODE IS NOT VALID

ITEM 44 - Structure Type, Approach Spans

There is no ITEM edit at this level for ITEM 44. ITEM 44 is edited by subparts 44A and 44B.

ITEM 44A - Kind of Material and/or Design

ITEM 44A must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE APPROACH KIND OF MATERIAL CODE IS NOT NUMERIC

ITEM 44B - Type of Design and/or Construction

ITEM 44B has a specified set of legal values: '00' through '22'. The edit program checks for a numeric range and then for a VALID-ITEM-44B. If an error is found, the ITEM-specific message is:

- THE APPROACH TYPE OF DESIGN CODE IS NOT VALID

ITEM 45 - Number of Spans in Main Unit

ITEM 45 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE NUMBER OF MAIN SPANS IS NOT NUMERIC

ITEM 46 - Number of Approach Spans

ITEM 46 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE NUMBER OF APPROACH SPANS IS NOT NUMERIC

ITEM 47 - Inventory Route, Total Horizontal Clearance

ITEM 47 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE TOTAL HORIZONTAL CLEARANCE IS NOT NUMERIC

ITEM 48 - Length of Maximum Span

ITEM 48 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE MAXIMUM SPAN LENGTH IS NOT NUMERIC

ITEM 49 - Structure Length

ITEM 49 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE STRUCTURE LENGTH IS NOT NUMERIC

ITEM 50 - Curb or Sidewalk Widths

There is no ITEM edit at this level for ITEM 50. ITEM 50 is edited by subparts 50A and 50B.

ITEM 50A - Left Curb or Sidewalk Width

ITEM 50A must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE LEFT CURB WIDTH IS NOT NUMERIC

ITEM 50B - Right Curb or Sidewalk Width

ITEM 50B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE RIGHT CURB WIDTH IS NOT NUMERIC

ITEM 51 - Bridge Roadway Width Curb-To-Curb

ITEM 51 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE ROADWAY WIDTH IS NOT NUMERIC

ITEM 52 - Deck Width Out-To-Out

ITEM 52 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE DECK WIDTH IS NOT NUMERIC

ITEM 53 - Minimum Vertical Clearance Over Bridge Roadway

ITEM 53 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE MIN VERTICAL OVERCLEARANCE NOT NUMERIC

ITEM 54 - Minimum Vertical Underclearance

ITEM 54 is edited by subparts 54A and 54B.

ITEM 54A - Reference Feature

ITEM 54A has a specified set of legal values: 'H', 'R', and 'N'. The edit program checks for a VALID-ITEM-54A. If an error is found, the ITEM-specific message is:

- THE UNDERCLEARANCE REF. FEATURE IS NOT A VALID CODE

ITEM 54B - Minimum Vertical Underclearance

ITEM 54B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE MIN VERT. UNDERCLEARANCE IS NOT NUMERIC

ITEM 55 - Minimum Lateral Underclearance on Right

There is no ITEM edit at this level for ITEM 55. ITEM 55 is edited by subparts 55A and 55B.

ITEM 55A - Reference Feature

ITEM 55A has a specified set of legal values: 'H', 'R', and 'N'. The edit program checks for a VALID-ITEM-55A. If an error is found, the ITEM-specific message is:

- THE LATERAL REFERENCE FEATURE CODE IS NOT VALID

ITEM 55B - Minimum Lateral Underclearance

ITEM 55B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE MIN LATERAL UNDERCLEARANCE CODE IS NOT NUMERIC (R)

ITEM 56 - Minimum Lateral Underclearance on Left

ITEM 56 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE MIN LATERAL UNDERCLEARANCE CODE IS NOT NUMERIC (L)

ITEM 58 - Deck

ITEM 58 has a specified set of legal values: '0' through '9', and 'N'. The edit program checks for a VALID-ITEM-58. If an error is found, the ITEM-specific message is:

- THE DECK RATING CODE IS NOT VALID

ITEM 59 - Superstructure

ITEM 59 has a specified set of legal values: '0' through '9', and 'N'. The edit program checks for a VALID-ITEM-59. If an error is found, the ITEM-specific message is:

- THE SUPERSTRUCTURE RATING CODE IS NOT VALID

ITEM 60 - Substructure

ITEM 60 has a specified set of legal values: '0' through '9', and 'N'. The edit program checks for a VALID-ITEM-60. If an error is found, the ITEM-specific message is:

- THE SUBSTRUCTURE RATING CODE IS NOT VALID

ITEM 61 - Channel and Channel Protection

ITEM 61 has a specified set of legal values: '0' through '9', and 'N'. The edit program checks for a VALID-ITEM-61. If an error is found, the ITEM-specific message is:

- THE CHANNEL RATING CODE IS NOT VALID

ITEM 62 - Culverts

ITEM 62 has a specified set of legal values: '0' through '9', and 'N'. The edit program checks for a VALID-ITEM-62. If an error is found, the ITEM-specific message is:

- THE CULVERT RATING CODE IS NOT VALID

ITEM 63 - Method Used to Determine Operating Rating

ITEM 63 has a specified set of legal values: '1' through '5'. The edit program checks for a VALID-ITEM-63. If an error is found, the ITEM-specific message is:

- OPERATING RATING METHOD MUST BE CODED 1 THRU 5

ITEM 64 - Operating Rating

ITEM 64B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE LOADING IN METRIC TONS IS NOT NUMERIC

ITEM 65 - Method Used to Determine Inventory Rating

ITEM 65 has a specified set of legal values: '1' through '5'. The edit program checks for a VALID-ITEM-65. If an error is found, the ITEM-specific message is:

- INVENTORY RATING METHOD MUST BE CODED 1 THRU 5

ITEM 66 - Inventory Rating

ITEM 66 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE INVENTORY RATING IN METRIC TONS IS NOT NUMERIC

ITEM 67 - Structural Evaluation, ITEM 68 - Deck Geometry and ITEM 69 - Underclearances have no edit since these Items are calculated and inserted by the Edit\Update Program.

ITEM 70 - Bridge Posting

ITEM 70 has a specified set of legal values: '0' through '5'. The edit program checks for a VALID-ITEM-70. If an error is found, the ITEM-specific message is:

- THE BRIDGE POSTING EVALUATION CODE IS NOT VALID

ITEM 71 - Waterway Adequacy

ITEM 71 has a specified set of legal values: '0', '2' through '9', and 'N'. The edit program checks for a VALID-ITEM-71. If an error is found, the ITEM-specific message is:

- THE WATERWAY ADEQUACY EVALUATION CODE IS NOT VALID

ITEM 72 - Approach Roadway Alignment

ITEM 72 has a specified set of legal values: '0', '2' through '9', and 'N'. The edit program checks for a VALID-ITEM-72. If an error is found, the ITEM-specific message is:

- THE APPROACH ROAD ALIGNMENT EVALUATION CODE IS NOT VALID

ITEM 75 - Type of Work

ITEM 75 may be blank; there is no ITEM edit at this level for ITEM 75. ITEM 75 is edited by subparts 75A and 75B.

ITEM 75A - Type of Work Proposed

ITEM 75A has a specified set of legal values: '31' through '38'. The edit program checks for a numeric range and then for a VALID-ITEM-75A. If an error is found, the ITEM-specific message is:

- THE TYPE OF WORK PROPOSED CODE IS NOT VALID

ITEM 75B - Work Done By

ITEM 75B has a specified set of legal values: '1' or '2'. The edit program checks for a numeric range and then for a VALID-ITEM-75B. If an error is found, the ITEM-specific message is:

- THE WORK DONE BY CODE IS NOT VALID

ITEM 76 - Length of Structure Improvement

ITEM 76 must be numeric or blank. The edit program checks for a numeric range and blank. If an error occurs, the ITEM-specific message is:

- THE LENGTH OF IMPROVEMENT CODE IS NOT VALID

ITEM 90 - Inspection Date

ITEM 90 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE DATE OF INSPECTION IS NOT NUMERIC

Month of inspection can equal '01' through '12'. Month must not be greater than '12'. If it is, the ITEM-specific message is:

- THE DATE OF INSPECTION MONTH IS > 12

ITEM 91 - Designated Inspection Frequency

ITEM 91 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE INSPECTION FREQUENCY MONTHS ARE NOT NUMERIC

The program checks for month value to equal '00' or be greater than '48'. If either condition exists, the ITEM-specific message is:

- INSPECTION FREQUENCY MONTHS ARE > 48

ITEM 92 - Critical Feature Inspection

There is no ITEM edit at this level for ITEM 92. ITEM 92 is edited by subparts 92A through 92C.

ITEM 92A - Feature Critical Details

ITEM 92A is split into a special inspection flag and number of months between inspections. The special inspection flag has a specified set of values, 'Y' or 'N'. Number of months between inspections must be numeric and less than '25'. The program checks first for VALID-ITEM-92A flag. If an error is found, the ITEM-specific message is:

- THE FRACTURE INSPECTION CODE IS NOT VALID

If special inspection flag is valid and equals 'Y', program checks month field for numeric code. The ITEM-specific message is:

- THE FRACTURE INSP. MONTH CODE IS NOT NUMERIC

Finally, the program checks the months field for a valid range. If an error is found, the ITEM-specific message is:

- THE FRACTURE INSP. MONTH CODE IS NOT WITHIN RANGE

ITEM 92B - Underwater Inspection

ITEM 92B is split into a special inspection flag and the number of months between inspections. The special inspection flag has a specified set of legal values: 'Y' or 'N'. The number of months between inspections must be numeric and less than '61'. The program checks first for a VALID-ITEM-92B flag. If an error is found, the ITEM-specific message is:

- THE UNDERWATER INSPECTION CODE IS NOT VALID

If the special inspection flag is valid and equal to 'Y', the program checks the months field for a numeric code. If an error is found, the ITEM-specific message is:

- THE UNDERWATER INSP. MONTH CODE IS NOT NUMERIC

Finally, the program checks the months field for a valid range. If an error is found, the ITEM-specific message is:

- THE UNDERWATER INSP. MONTH CODE IS NOT WITHIN RANGE

ITEM 92C - Other Special Inspection

ITEM 92C is split into a special inspection flag and the number of months between inspections. The special inspection flag has a specified set of legal values: 'Y' or 'N'. The number of months between inspections must be numeric and less than '25'. The program checks first for a VALID-ITEM-92C flag.
If an error is found, the ITEM-specific message is:

- THE OTHER SPECIAL INSPECTION CODE IS NOT VALID

If the special inspection flag is valid and equal to 'Y', the program checks the months field for a numeric code. If an error is found, the ITEM-specific message is:

- THE OTHER SPECIAL INSP. MONTH CODE IS NOT NUMERIC

Finally, the program checks the months field for a valid range. The ITEM-specific error message is:

- THE OTHER SPECIAL INSP. MONTH CODE IS NOT WITHIN RANGE

ITEM 93 - Critical Feature Inspection Date

ITEM 93 is edited by subparts 93A through 93C.

ITEM 93A - Fracture Critical Details

The edit program checks for a numeric range or blanks. If ITEM 92A is coded 'Y', then ITEM 93A must be a numeric code and within valid range. If an error occurs, the ITEM-specific message is:

- THE FRACTURE INSP DATE IS NOT NUMERIC

The program checks the months field for a range of from '01' to '12'. If an error is found, the ITEM-specific message is:

- THE FRACTURE INSP DATE MONTH IS > 12

ITEM 93B - Underwater Inspection

The edit program checks for a numeric range or blanks. If ITEM 92B is coded 'Y', then ITEM 93B must be a numeric code and within valid range. If an error occurs, the ITEM-specific message is:

- THE UNDERWATER INSP DATE IS NOT NUMERIC

The program checks the months field for a range of from '01' to '12'. If an error is found, the ITEM-specific message is:

- THE UNDERWATER INSP DATE MONTH IS > 12

ITEM 93C - Other Special Inspection

The edit program checks for a numeric range or blank. If ITEM 92C is coded 'Y', then ITEM 93C must be a numeric code and within valid range. If an error occurs, the ITEM-specific message is:

- THE OTHER SPECIAL INSP DATE IS NOT NUMERIC

The program checks the months field for a range of from '01' to '12'. If an error is found, the ITEM-specific message is:

- THE OTHER SPECIAL INSP DATE MONTH IS > 12

ITEM 94 - Bridge Improvement Cost

ITEM 94 must be a numeric code or blank. The edit program checks for a numeric range. The ITEM-specific error message is:

- THE BRIDGE IMPROVEMENT COST IS NOT VALID

ITEM 95 - Roadway Improvement Cost

ITEM 95 must be a numeric code or blank. The edit program checks for a numeric range. The ITEM-specific error message is:

- THE ROADWAY IMPROVEMENT COST IS NOT VALID

ITEM 96 - Total Project Cost

ITEM 96 must be a numeric code or blank. The edit program checks for a numeric range. The ITEM-specific error message is:

- THE TOTAL PROJECT IMPROVEMENT COST IS NOT VALID

ITEM 97 - Year of Improvement Cost Estimate

ITEM 97 must be a numeric code or blank. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE YEAR OF THE COST ESTIMATE IS NOT VALID

The program checks the date for more than eight (8) years old. If yes, the ITEM-specific error message is:

- THE YEAR OF THE COST ESTIMATE IS NOT WITHIN RANGE

ITEM 98 - Border Bridge

ITEM 98 is blank if not bordering another State. There is no ITEM edit at this level. Edit is by subparts 98A and 98B.

ITEM 98A - Neighboring State Code

This code is validated using a table look-up on the valid State codes. In addition to the normal STATE/REGION CODE, "CAN" and "MEX" have been added. The ITEM-specific error message is:

- THE NEIGHBORING STATE CODE IS NOT VALID

ITEM 98B - Percent Responsibility

ITEM 98B must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE OTHER STATE PERCENT CODE IS NOT NUMERIC

ITEM 99 - Border Bridge Structure Number

If a valid STATE CODE is entered, this ITEM is checked for its presence. This is an alphanumeric field. If the ITEM is required and is not present, the ITEM-specific error message is:

- THE BORDER BRIDGE STRUCTURE NUMBER IS NOT ENTERED

ITEM 100 - STRAHNET Designation

ITEM 100 has a specified set of legal values: '0', '1', or '2'. The edit program checks for a VALID-ITEM-100. If an error is found, the ITEM-specific message is:

- THE STRAHNET DESIGNATION CODE IS NOT VALID

ITEM 101 - Parallel Structure Designation

ITEM 101 has a specified set of legal values: 'R', 'L', or 'N'. The edit program checks for a VALID-ITEM-101. If an error is found, the ITEM-specific message is:

- THE PARALLEL STRUCTURE DESIGNATION CODE IS NOT VALID

ITEM 102 - Direction of Traffic

ITEM 102 has a specified set of legal values: '0' through '3'. The edit program checks for a VALID-ITEM-102. If an error is found, the ITEM-specific message is:

- THE DIRECTION OF TRAFFIC CODE IS NOT VALID

ITEM 103 - Temporary Structure Designation

ITEM 103 has specified legal values: 'T' or blank (' '). The edit program checks for a VALID-ITEM-103. If an error is found, the ITEM-specific message is:

- THE TEMPORARY STRUCTURE DESIGNATION CODE IS NOT VALID

ITEM 104 - Highway System of the Inventory Route

ITEM 104 has a specified set of legal values: '0' and '1'. The edit program checks for a VALID-ITEM-104. If an error is found, the ITEM-specific message is:

- THE HIGHWAY SYSTEM CODE IS NOT VALID

ITEM 105 - Federal Lands Highways

ITEM 105 has a specified set of legal values: '0' thru '6', or '9'. The edit program checks for a VALID-ITEM-105. If an error is found, the ITEM-specific message is:

- FEDERAL LANDS HIGHWAYS MUST BE 0 THRU 6 OR 9

ITEM 106 - Year Reconstructed

ITEM 106 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE YEAR OF THE RECONSTRUCTION CODE IS NOT NUMERIC

ITEM 107 - Deck Structure Type

ITEM 107 has a specified set of legal values: '1' through '9', or 'N'. The edit program checks for a VALID-ITEM-107. If an error is found, the ITEM-specific message is:

- THE DECK STRUCTURE CODE IS NOT VALID

ITEM 108 - Wearing Surface/Protective System

There is no edit at this level for ITEM 108. ITEM 108 is edited by subparts 108A through 108C.

ITEM 108A - Type of Wearing Surface

ITEM 108A has a specified set of legal values: '0' through '9', or 'N'. The edit program checks for a VALID-ITEM-108A. If an error is found, the ITEM-specific message is:

- THE WEARING SURFACE TYPE CODE IS NOT VALID

ITEM 108B - Type of Membrane

ITEM 108B has a specified set of legal values: '0' through '3', '8', '9', or 'N'. The edit program checks for a VALID-ITEM-108B. If an error is found, the ITEM-specific message is:

- THE MEMBRANE TYPE CODE IS NOT VALID

ITEM 108C - Deck Protection

ITEM 108C has a specified set of legal values: '0' through '4', '6' through '9', or 'N'. The edit program checks for a VALID-ITEM-108C. If an error is found, the ITEM-specific message is:

- THE DECK PROTECTION CODE IS NOT VALID

ITEM 109 - Average Daily Truck Traffic

ITEM 109 must be a numeric code or blank. The edit program checks for a numeric range. The ITEM-specific error message is:

- THE ADT TRUCK TRAFFIC PERCENTAGE IS NOT VALID

ITEM 110 - Designated National Network

ITEM 110 has a specified set of legal values: '0' or '1'. The edit program checks for a VALID-ITEM-110. If an error is found, the ITEM-specific message is:

- THE NATIONAL NETWORK CODE IS NOT VALID

ITEM 111 - Pier or Abutment Protection

ITEM 111 has a specified set of legal values: '1' through '5' or blank (' '). The edit program checks for a VALID-ITEM-111. If an error is found, the ITEM-specific message is:

- THE PIER PROTECTION CODE IS NOT VALID

ITEM 112 - NBIS Bridge Length

ITEM 112 has a specified set of legal values: 'Y' or 'N'. The program checks for a VALID-ITEM-112. The ITEM-specific message is:

- THE NBIS BRIDGE LENGTH CODE IS NOT VALID

ITEM 113 - Scour Critical Bridges

ITEM 113 has a specified set of legal values: '0' through '9', 'N', 'U', or 'T'. The edit program checks for a VALID-ITEM-113. If an error is found, the ITEM-specific message is:

- THE SCOUR CRITICAL CODE IS NOT VALID

ITEM 114 - Future Average Daily Traffic

ITEM 114 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE FUTURE ADT IS NOT VALID

ITEM 115 - Year of Future Average Daily Traffic

ITEM 115 must be a numeric code. The edit program checks for a numeric range. If an error occurs, the ITEM-specific message is:

- THE YEAR OF FUTURE ADT IS NOT NUMERIC

The program checks YEAR OF THE FUTURE ADT for a year at least seventeen (17) years from the year of inspection date. The ITEM-specific error message is:

- THE YEAR OF FUTURE ADT IS < 17 YEARS FROM INSP DATE

The program checks YEAR OF FUTURE ADT for a year not more than 22 years from the year of inspection date. The error message is:

- THE YEAR OF FUTURE ADT IS > 22 YEARS FROM INSP DATE

ITEM 116 - Min. Navigation Vertical Clearance Vertical Lift Bridge

ITEM 116 must be a numeric code or blank. The edit program checks for a numeric range. The ITEM-specific error message is:

- THE MIN NAV VERT CLEAR LIFT BRIDGE CODE IS NOT VALID

1.7 ITEM Crosscheck Edits

Listed below are the crosscheck edits. A crosscheck edit will only be performed if the fields involved have passed the appropriate initial error checks. The following crosscheck edits apply if ITEM 5A is equal to '1':

5B - 104	42B - 69	66 - 41
12 - 13	42B - 71	96 - 75A
12 - 26	43B - 62	96 - 94 - 95
16 - 100	47 - 100	97 - 94 - 95 - 96
17 - 100	48 - 49	103 - 41
28A - 102	49 - 112	106 - 27
39 - 38	51 - 52	109 - 29
39 - 40 - 38	51 - 43B	111 - 38
40 - 38	52 - 43B	113 - 42B
41 - 59	58 - 43B	116 - 43B
41 - 60	59 - 43B	
41 - 62	60 - 43B	HBRRP Eligible:
41 - 103	62 - 43B	
42 - 28	64 - 41	75 - 76 - 94
42A - 28A	64 - 66	95 - 96 - 97
42B - 28B		

ITEM 5B and ITEM 104

If ITEM 104 does not equal '1', the second digit of ITEM 5B must not equal '1'. The ITEM-specific error message is:

- ITEM 104 IS NOT = 1 -- SO ITEM 5B MUST NOT = 1

ITEM 12 and ITEM 13

If ITEM 12 is equal to '1', ITEM 13 must be coded. The ITEM-specific error message is:

- ITEM 12=1, SO ITEM 13 CANNOT BE BLANK

If ITEM 12 is equal to '0', ITEM 13 should not be coded. The ITEM-specific error message is:

- ITEM 12=0, SO ITEM 13 MUST BE BLANK OR ZEROES

ITEM 12 and ITEM 26

If ITEM 12 is equal to '1', ITEM 26 must be equal to '01', '02', '06', '11', '12', or '14'. The ITEM-specific error message is:

- ITEM 12=1, SO ITEM 26 MUST BE 01, 02, 06, 11, 12, OR 14

ITEM 16 and ITEM 100

If ITEM 100 equals '1' or '2', ITEM 16 must be greater than '00000'. The ITEM-specific error message is:

- A VALID ITEM 100 IS ENTERED -- SO ITEM 16 MUST BE > 0

ITEM 17 and ITEM 100

If ITEM 100 equals '1' or '2', ITEM 17 must be greater than '000000'. The ITEM-specific error message is:

- A VALID ITEM 100 IS ENTERED -- SO ITEM 17 MUST BE > 0

ITEM 28A and ITEM 102

If ITEM 28A equals '1', ITEM 102 must equal '1' or '3'. The ITEM-specific error message is:

- ITEM 28A = 1 SO ITEM 102 MUST = 1 OR 3

ITEM 39 and ITEM 38

If ITEM 38 equals '1', ITEM 39 must be greater than '0000'. The ITEM-specific error message is:

- ITEM 38 = 1 -- SO ITEM 39 MUST BE GREATER THAN 0

ITEM 39, ITEM 40 and ITEM 38

If ITEM 38 equals '0' or 'N', ITEM 39 and ITEM 40 must equal '0'. If an error is found, the ITEM-specific message is:

- ITEM 38 = 0 -- SO ITEMS 39 AND 40 MUST = 0

ITEM 40 and ITEM 38

If ITEM 38 equals '1', ITEM 40 must be greater than '0000'. If an error is found, the ITEM-specific message is:

- ITEM 38 = 1 -- SO ITEM 40 MUST BE GREATER THAN 0

ITEM 41 and ITEM 59

If ITEM 59 equals '0' or '1', ITEM 41 must be 'D', 'E', or 'K'. If an error is found, the ITEM-specific message is:

- ITEM 59 = 0 OR 1 -- SO ITEM 41 MUST = D, E, OR K

ITEM 41 and ITEM 60

If ITEM 60 equals '0' or '1', ITEM 41 must be 'D', 'E', or 'K'. If an error is found, the ITEM-specific message is:

- ITEM 60 = 0 OR 1 -- SO ITEM 41 MUST = D, E, OR K

ITEM 41 and ITEM 62

If ITEM 62 equals '0' or '1', ITEM 41 must be 'D', 'E', or 'K'. If an error is found, the ITEM-specific message is:

- ITEM 62 = 0 OR 1 -- SO ITEM 41 MUST = D, E, OR K

ITEM 41 and ITEM 103

If ITEM 103 equals 'T', ITEM 41 must equal 'D' or 'E' or 'P'. If an error is found, the ITEM-specific message is:

- ITEM 103 IS = T AND ITEM 41 IS NOT = D, E, OR P

ITEM 42A and ITEM 28A

If ITEM 28A is greater than '00', ITEM 42A must be '1', '4', '5', '6', '7', or '8'. The ITEM-specific error message is:

- ITEM 28A > 0 -- SO ITEM 42A MUST = 1, 4, 5, 6, 7, OR 8

ITEM 42B and ITEM 28B

If ITEM 28B is greater than '00', ITEM 42B must be '1', '4', '6', or '8'. If an error is found, the ITEM-specific message is:

- ITEM 28B > 0 -- SO ITEM 42B MUST BE 1, 4, 6, OR 8

ITEM 42B and ITEM 28B

If ITEM 28B is equal to '00', ITEM 42B must be '2', '3', '5', '7', '9', or '0'. If an error is found, the ITEM-specific message is:

- ITEM 28B = 0 -- SO ITEM 42B MUST BE 0, 2, 3, 5, 7, OR 9

ITEM 42B and ITEM 69

If ITEM 69 is numeric, ITEM 42B must be '1', '2', '4', '6', '7', or '8'. The ITEM-specific error message is:

- ITEM 69 IS NUMERIC -- 42B MUST BE = 1, 2, 4, 6, 7, OR 8

ITEM 42B and ITEM 71

If ITEM 71 is numeric, ITEM 42B must be '5', '6', '7', '8', '9', or '0'. The ITEM-specific error message is:

- ITEM 71 IS NUMERIC -- 42B MUST BE = 5, 6, 7, 8, 9, OR 0

ITEM 43B and ITEM 62

If ITEM 62 is numeric, ITEM 43B must be '19'. If an error is found, the ITEM-specific message is:

- ITEM 62 IS NUMERIC -- SO ITEM 43B MUST BE 19

ITEM 47 and ITEM 100

If ITEM 100 is equal to '1' or '2', ITEM 47 must be greater than '000'. If an error is found, the ITEM-specific message is:

- A VALID ITEM 100 IS ENTERED -- SO ITEM 47 MUST BE > 0

ITEM 48 and ITEM 49

ITEM 48 must not be greater than ITEM 49. If an error is found, the ITEM-specific message is:

- ITEM 48 MUST NOT BE GREATER THAN ITEM 49

ITEM 49 and ITEM 112

If ITEM 112 equals 'Y', ITEM 49 must be greater than or equal to '000061'. The ITEM-specific error message is:

- ITEM 112 = Y -- SO ITEM 49 MUST BE > OR = 6.1

ITEM 51 and ITEM 52

ITEM 51 must not be greater than ITEM 52; the edit program checks for this condition. The ITEM-specific error message is:

- ITEM 51 MUST NOT BE GREATER THAN ITEM 52

ITEM 51 and ITEM 43B

If ITEM 51 is equal to '0000', then ITEM 43B must equal '19'. If an error is found, the ITEM-specific message is:

- ITEM 51 = 0, SO ITEM 43B MUST BE 19

ITEM 52 and ITEM 43B

If ITEM 52 is equal to '0000', then ITEM 43B must equal '19'. If an error is found, the ITEM-specific message is:

- ITEM 52 = 0, SO ITEM 43B MUST BE 19

ITEM 58 and ITEM 43B

If ITEM 43B is equal to '19', ITEM 58 must be 'N'. If an error is found, the ITEM-specific message is:

- ITEM 43B = 19 -- SO ITEM 58 MUST BE N

ITEM 59 and ITEM 43B

If ITEM 43B is equal to '19', ITEM 59 must be 'N'. If an error is found, the ITEM-specific message is:

- ITEM 43B = 19 -- SO ITEM 59 MUST BE N

ITEM 60 and ITEM 43B

If ITEM 43B is equal to '19', ITEM 60 must be 'N'. The ITEM-specific error message is:

- ITEM 43B = 19 -- SO ITEM 60 MUST BE N

ITEM 62 and ITEM 43B

If ITEM 43B equal '19', ITEM 62 must be numeric. If an error is found, the ITEM-specific message is:

- ITEM 43B = 19 -- SO ITEM 62 MUST BE NUMERIC

ITEM 64 and ITEM 41

If ITEM 41 equals 'E' or 'K', ITEM 64 must equal '00'. The ITEM-specific error message is:

- ITEM 41 = E OR K -- SO ITEM 64 MUST BE = 0

ITEM 64 and ITEM 66

ITEM 66 must not be greater than ITEM 64. The ITEM-specific error message is:

- ITEM 66 MUST NOT BE GREATER THAN ITEM 64

ITEM 66 and ITEM 41

If ITEM 41 equals 'E' or 'K', ITEM 66 must equal '00'. If an error is found, the ITEM-specific message is:

- ITEM 41 = E OR K -- SO ITEM 66 MUST BE = 0

ITEM 96 and ITEM 75A

If ITEM 75A is greater than '00', ITEM 96 must be greater than '00000'. If an error is found, the ITEM-specific message is:

- ITEM 75A IS GREATER THAN 0 -- SO ITEM 96 MUST BE > 0

ITEM 96, ITEM 94 and ITEM 95

ITEM 96 should be greater than the sum of ITEMS 94 and 95. If an error is found, the ITEM-specific message is:

- ITEM 96 MUST BE GREATER THAN THE SUM OF ITEMS 94 AND 95

ITEM 97 AND ITEMS 94, 95, 96

If ITEM 97 is not blank, then ITEMS 94, 95, and 96 cannot be blank. If an error occurs, the ITEM-specific message is:

- ITEM 97 NOT BLANK -- SO ALL 94/95/96 CANNOT BE BLANK

ITEM 103 and ITEM 41

If ITEM 41 equals 'D' or 'E', ITEM 103 must equal 'T'. If an error is found, the ITEM-specific message is:

- ITEM 41 = D OR E -- SO ITEM 103 MUST BE T

ITEM 106 and ITEM 27

If ITEM 106 is greater than '0000', ITEM 106 must be greater than ITEM 27. The ITEM-specific error message is:

- ITEM 106 > 0 SO ITEM 106 MUST BE GREATER THAN ITEM 27

ITEM 109 and ITEM 29

If ITEM 29 is greater than '000100', ITEM 109 must not be blank. The ITEM-specific error message is:

- ITEM 29 IS > 100 -- SO ITEM 109 MUST BE ENTERED

ITEM 111 and ITEM 38

If ITEM 38 is equal to '1', ITEM 111 must not be blank. The ITEM-specific error message is:

- ITEM 38 = 1 -- SO ITEM 111 MUST BE ENTERED

ITEM 113 and ITEM 42B

If ITEM 42B equals '5', '6', '7', '8', or '9'; ITEM 113 must be numeric. The ITEM-specific error message is:

- ITEM 42B IS 5 THRU 9 -- SO ITEM 113 MUST BE NUMERIC

ITEM 113 and ITEM 42B

If ITEM 42B equals '1', '2', '3', or '4'; ITEM 113 must be 'N'. The ITEM-specific error message is:

- ITEM 42B IS 1 THRU 4 -- SO ITEM 113 MUST BE N

ITEM 116 and ITEM 43B

If ITEM 43B equals '15', ITEM 116 must not be blank. The ITEM-specific error message is:

- ITEM 43B = 15 -- SO ITEM 116 MUST NOT BE BLANK

ITEMS 75, 76, 94, 95, 96, and 97

If the bridge is structurally deficient and/or functionally obsolete, SUFFICIENCY RATING is equal to 80.0 or less, and this is an "on" record (ITEM 5A = '1'): ITEMS 75, 76, 94, 95, 96, and 97 must be numeric and greater than zeroes. The ITEM-specific error messages will depend on what ITEM is edited from the group:

For ITEM 75, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 75A MUST BE CODED

For ITEM 76, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 76 MUST BE CODED

For ITEM 94, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 94 MUST BE CODED

For ITEM 95, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 95 MUST BE CODED

For ITEM 96, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 96 MUST BE CODED

For ITEM 97, the error message is:

- BRIDGE ELIGIBLE FOR HBRRP - SO ITEM 97 MUST BE CODED

1.8 ITEM Reasonableness Edits

Reasonableness edits flag ITEMS which do not necessarily contain bad data; they contain values deemed to be outside of the logical limits for the ITEM. The following reasonableness edits apply if ITEM 5A is equal to '1':

10	46	53
28A	47	54
29	48	55
30	49	90
32	50A	91
39	50B	106
40	51	109
45	52	114

ITEM 10

A warning is issued if ITEM 10 is less than 2.43 meters. The ITEM-specific error message is:

- ITEM 10 SHOULD NOT BE LESS THAN 2.43 METERS

ITEM 28A

A warning is issued if ITEM 28A is greater than '14'. The ITEM-specific error message is:

- ITEM 28A IS GREATER THAN 14

ITEM 29

A warning is issued if ITEM 29 is greater than '200,000'. The ITEM-specific error message is:

- ITEM 29 IS GREATER THAN 200,000

ITEM 30

A warning is issued if ITEM 30 is older than the current year less 4. The ITEM-specific error message is:

- ITEM 30 IS MORE THAN 4 YEARS OLD

ITEM 32

A warning is issued if ITEM 32 is less than 2.4 meters. The ITEM-specific error message is:

- ITEM 32 IS LESS THAN 2.4 METERS

ITEM 39

A warning is issued if ITEM 39 is greater than 76.2 meters. The ITEM-specific error message is:

- ITEM 39 IS GREATER THAN 76.2 METERS

ITEM 40

A warning is issued if ITEM 40 is greater than 300 meters. The ITEM-specific error message is:

- ITEM 40 IS GREATER THAN 300 METERS

ITEM 45

A warning is issued if ITEM 45 is greater than '050'. The ITEM-specific error message is:

- ITEM 45 IS GREATER THAN 50

ITEM 46

A warning is issued if ITEM 46 is greater than '0050'. The ITEM-specific error message is:

- ITEM 46 IS GREATER THAN 50

ITEM 47

A warning is issued if ITEM 47 is less than 2.4 meters. The ITEM-specific error message is:

- ITEM 47 IS LESS THAN 2.4 METERS

ITEM 48

A warning is issued if ITEM 48 is greater than 300 meters. The ITEM-specific error message is:

- ITEM 48 IS GREATER THAN 300 METERS

ITEM 49

A warning is issued if ITEM 49 is greater than 1200 meters. The ITEM-specific error message is:

- ITEM 49 IS GREATER THAN 1,200 METERS

ITEM 50A

A warning is issued if ITEM 50A is greater than 3.6 meters. The ITEM-specific error message is:

- ITEM 50A IS GREATER THAN 3.6 METERS

ITEM 50B

A warning is issued if ITEM 50B is greater than 3.6 meters. The ITEM-specific error message is:

- ITEM 50B IS GREATER THAN 3.6 METERS

ITEM 51

A warning is issued if ITEM 51 is greater than 45.7 meters or less than 2.7 meters and not equal to '0000'. The ITEM-specific error message is:

- ITEM 51 IS NOT = 0 AND < 2.7 M OR > 45.7 M

ITEM 52

A warning is issued if ITEM 52 is greater than 45.7 meters or less than 2.7 meters and not equal to '0000'. The ITEM-specific error message is:

- ITEM 52 IS NOT = 0 AND < 2.7 M OR > 45.7 M

ITEM 53

A warning is issued if ITEM 53 is less than 2.13 meters. If an error is found, the ITEM-specific message is:

- ITEM 53 IS LESS THAN 2.13 METERS

ITEM 54

A warning is issued if ITEM 54A indicates railroad ('R') and ITEM 54B is less than 4.87 meters. The ITEM-specific error message is:

- ITEM 54A EQUALS R AND ITEM 54B IS LESS THAN 4.87 METERS

ITEM 54B

A warning is issued if ITEM 54B is less than 2.13 meters and not equal to '0000'. The ITEM-specific error message is:

- ITEM 54B IS LESS THAN 2.13 METERS AND NOT EQUAL TO ZERO

ITEM 55

A warning is issued if ITEM 55A indicated railroad ('R') and ITEM 55B is less than 1.5 meters. The ITEM-specific error message is:

- ITEM 55A EQUALS R AND ITEM 55B IS LESS THAN 1.5 METERS

ITEM 90

A warning is issued if ITEM 90 is older than 3 years. The ITEM-specific error message is:

- ITEM 90 IS MORE THAN 3 YEARS OLD

ITEM 91

A warning is issued if ITEM 91 is greater than twenty-four (24) months. If an error is found, the ITEM-specific message is:

- ITEM 91 IS GREATER THAN 24 MONTHS

ITEM 106

A warning is issued if ITEM 106 is entered and not '0000' and the first two (2) digits are not equal to '19' or '20'. The ITEM-specific error message is:

- THE CENTURY OF ITEM 106 MUST = 19 OR 20

ITEM 109

A warning is issued if ITEM 109 is greater than '40'. The ITEM-specific error message is:

- ITEM 109 IS GREATER THAN 40

ITEM 114

A warning is issued if ITEM 114 is greater than '200,000'. The ITEM-specific error message is:

- ITEM 114 IS > 200,000

1.9 ITEM Reasonableness Crosscheck Edits

Reasonableness crosscheck edits test for reasonableness between two or more ITEMS. These edits flag ITEM relationships that are not necessarily in error, but which exceed reasonable limits and should be checked and verified. The following reasonableness crosscheck edits apply if ITEM 5A is equal to '1':

27 - 58 thru 62, 67 thru 72
27 - 64
27 - 66
28A - 51
28A - 32 - 51
41 - 58, 59, 60, 62, 67, 68, 69, 71, 72
41 - 103 - 64
51 - 28A
51 - 52
70 - 59
70 - 60
70 - 62
91 - 41
92A - 93A
92B - 93B
92C - 93C
104 - 26
114 - 29

ITEM 27, ITEMS 58 - 62, AND ITEMS 67 - 72

A warning is issued if ITEM 27 is within the last four (4) years or equal to the current year and any one of ITEM 58 through ITEM 62 or ITEM 67 through ITEM 72 is coded less than '5' and not equal to 'N'. Each ITEM is checked individually against ITEM 27. The ITEM-specific error messages are:

- ITEM 27 IS YOUNGER THAN 4 AND ITEM 58 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 59 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 60 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 61 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 62 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 67 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 68 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 69 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 70 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 71 IS < 5
- ITEM 27 IS YOUNGER THAN 4 AND ITEM 72 IS < 5

ITEM 27 and ITEM 64

A warning is issued if ITEM 27 is within the last four (4) years or equal to the current year and ITEM 64 is less than '18'. The ITEM-specific error message is:

- ITEM 27 IS YOUNGER THAN 4 AND ITEM 64 IS OUT OF RANGE

ITEM 27 and ITEM 66

A warning is issued if ITEM 27 is within the last four (4) years or equal to the current year and ITEM 66 is less than '18'. The ITEM-specific error message is:

- ITEM 27 IS YOUNGER THAN 4 AND ITEM 66 IS OUT OF RANGE

ITEM 28A and ITEM 51

A warning is issued if ITEM 51 is less than 4.8 meters and ITEM 28A is greater than 1. The ITEM-specific error message is:

- ITEM 51 IS LESS THAN 4.9 M AND 28A IS GREATER THAN 1

ITEM 28A, ITEM 32 and ITEM 51

A warning is issued if ITEM 51 is not equal to '0', ITEM 28A is greater than 3 and ITEM 32 is 1.5 or more times ITEM 51. The ITEM-specific error message is:

- ITEM 32 GREATER THAN 1.5 TIMES THE VALUE OF ITEM 51

A warning is issued if ITEM 51 is not equal to '0', ITEM 28A is less than or equal to '3' and ITEM 32 is 2.0 or more times ITEM 51. The ITEM-specific error message is:

- ITEM 32 GREATER THAN 2.0 TIMES THE VALUE OF ITEM 51

ITEM 41 and ITEMS 58, 59, 60, 62, 67, 68, 69, 71, 72

A warning is issued if any of these ITEMS is coded '0' and all others are coded greater than or equal to '2' or equal to 'N' and ITEM 41 is not equal to 'D', 'E', or 'K'. The ITEM-specific error message is:

- CODE IS NOT COMPATIBLE WITH ITEMS 58-60,62,67-69,71,72

ITEM 41, ITEM 103 and ITEM 64

If ITEM 64 equals '00', ITEM 41 must equal 'K' or ITEM 103 must equal 'T'. The ITEM-specific error message is:

- ITEM 64 = 0 -- ITEM 41 MUST = K OR ITEM 103 MUST = T

ITEM 51 and ITEM 28A

If ITEM 51 is greater than or equal to 4.9, then ITEM 28A should be 2 or greater, except for ramps. The ITEM-specific error message is:

- ITEM 51 > OR = 4.9, SO ITEM 28A SHOULD BE 2 OR GREATER

ITEM 51 and ITEM 52

A warning is issued if ITEM 51 is less than half of ITEM 52. The ITEM-specific error message is:

- ITEM 51 < 1/2 ITEM 52 -- REVIEW 28A, 29, 32, 51 AND 52

ITEM 70 and ITEM 59

A warning is issued if ITEM 70 is '5' and ITEM 59 is '0', '1', '2', or '3'. The ITEM-specific error message is:

- ITEM 70 = 5 -- SO ITEM 59 MUST BE GREATER THAN 3

ITEM 70 and ITEM 60

A warning is issued if ITEM 70 is '5' and ITEM 60 is '0', '1', '2', or '3'. The ITEM-specific error message is:

- ITEM 70 = 5 -- SO ITEM 60 MUST BE GREATER THAN 3

ITEM 70 and ITEM 62

A warning is issued if ITEM 70 is '5' and ITEM 62 is '0', '1', '2', or '3'. The ITEM-specific error message is:

- ITEM 70 = 5 -- SO ITEM 62 MUST BE GREATER THAN 3

ITEM 91 and ITEM 41

A warning is issued if ITEM 41 is 'B', 'D', 'E', 'P', or 'R' and ITEM 91 is not less than twenty-four (24) months. The ITEM-specific error message is:

- ITEM 41 = B, D, E, P, OR R AND ITEM 91 IS NOT < 24 MONTHS

ITEM 92A and ITEM 93A

A warning is issued if the first digit of ITEM 92A is 'Y' and ITEM 93A is older than the current date minus the last two (2) digits of ITEM 92A in months. The ITEM-specific error message is:

- ITEM 92A = Y AND ITEM 93A IS OLDER THAN THE INSP. FREQ.

ITEM 92B and ITEM 93B

A warning is issued if the first digit of ITEM 92B is 'Y' and ITEM 93B is older than the current date minus the last two (2) digits of ITEM 92B in months. The ITEM-specific error message is:

- ITEM 92B = Y AND ITEM 93B IS OLDER THAN THE INSP. FREQ.

ITEM 92C and ITEM 93C

A warning is issued if the first digit of ITEM 92C is 'Y' and ITEM 93C is older than the current date minus the last two (2) digits of ITEM 92C in months. The ITEM-specific error message is:

- ITEM 92C = Y AND ITEM 93C IS OLDER THAN THE INSP. FREQ.

ITEM 104 and ITEM 26

ITEM 104 and ITEM 26 are crosschecked according to the following table:

If ITEM 104 is:	ITEM 26 should be:
1	01, 02, 11, 12, OR 14
0	06, 07, 08, 09, 14, 16, 17, or 19

The ITEM-specific error messages are:

- ITEM 104 = 1, ITEM 26 SHOULD = 01,02,11,12, OR 14

- ITEM 104 = 0, ITEM 26 SHOULD = 06,07,08,09,14,16,17 OR 19

ITEM 114 and ITEM 29

A warning is issued if ITEM 114 is less than '0.4' times ITEM 29, the ITEM-specific error message is:

- ITEM 114 IS < 0.4 TIMES ITEM 29

A warning is issued if ITEM 114 is greater than 4 times ITEM 29, the ITEM-specific error message is:

- ITEM 114 IS > 4 TIMES ITEM 29

1.10 Underpass Record Edits - General

ITEM 5A = 2 or A through Z

The following ITEMS must be entered and are edited: ITEM 1; ITEM 3 through ITEM 11; ITEM 16; ITEM 17; ITEM 19; ITEM 20; ITEM 26 through ITEM 30; ITEM 42; ITEM 43; ITEM 47 through ITEM 49; ITEM 100 through ITEM 104; ITEM 104; ITEM 109; and ITEM 110 must be entered. Each of these ITEMS is edit checked as specified previously for the 'ITEM 5A = 1' ITEM edits (Section 1.6).

1.11 ITEM Edits Unique to Underpass Records

ITEM 28

If 'ITEM 5A not = 1', ITEM 28B must be greater than '00'. If an error occurs, the ITEM-specific message is:

- LANES FOR AN UNDER ROUTE(5A=2, A-Z) CANNOT BE ZERO

1.12 Underpass Record Crosscheck Edits - General

The following crosscheck edits are performed as specified previously for ITEM 5A = '1'.

16 - 100	29 - 109	47 - 100
17 - 100	42A - 28A	104 - 5B

1.13 ITEM Crosscheck Edits Unique to Underpass Records

ITEM 28B and ITEM 102

If ITEM 28B equals '01', ITEM 102 must equal '1' or '3'. If an error occurs, the ITEM-specific message is:

- ITEM 28B = 1 -- SO ITEM 102 MUST = 1 OR 3

ITEM 42A and ITEM 28A

If ITEM 28A is greater than '00', ITEM 42A must be '1', '4', '5', '6', '7', or '8'. The ITEM-specific error message is:

- ITEM 28A > 0 -- SO ITEM 42A MUST = 1, 4, 5, 6, 7, OR 8

If ITEM 28A equal '00', ITEM 42A must be '2', '3', '9', or '0'. The ITEM-specific error message is:

- ITEM 28A = 0 -- SO ITEM 42A MUST = 0, 2, 3, OR 9

1.14 ITEM Reasonableness Edits

The following ITEMS are edited using the same criteria as the 'ITEM 5A = 1' reasonableness edits (Section 2.7): ITEM 10, ITEM 29, ITEM 47, ITEM 48, and ITEM 49.

2.0 USING THE PC VERSION OF THE EDIT/UPDATE PROGRAM

The Edit/Update program can be run on the PC. When this is done, a master file residing on your PC or network is used as input. The output error file which the mainframe version creates (see page 3) is not created with the PC version. To correct errors, you will need to update the input master file and rerun the update. Since no error file is used, there is no need for the reformat program, the sort program, or the merge program. Only the Edit/Update program will be run.

2.1 Installing the Edit/Update Program on the PC

The following installation instructions assume you will copy the necessary files into a subdirectory called **BRIDGE** on your **C:** drive. If this is not convenient for you, replace the drive and directory you wish to use for **C:\BRIDGE** in the following lines. If this is done, three (3) files will need to be modified before running the Edit/Update, BREDIT.BAT, FILES.BAT, and PEDIT.BAT. See Section 2.3, "Files Used by the Edit/Update Program" for details on how to do this.

The PC version of the conversion program will be installed when the PC version of the Edit/Update is installed. For instructuctions on running the PC version of the conversion , see the "Conversion" write-up.

To install:

(1) Create a subdirectory called **BRIDGE** on your **C:** drive.

(2) Copy all files from the 3 1/2" high-density floppy labeled "NATIONAL BRIDGE INVENTORY CONVERSION & EDIT/UPDATE PROGRAM" into the **C:\BRIDGE** subdirectory.

(3) Create a file in the **C:\BRIDGE** subdirectory called **MFINPUT.DAT** containing your 432 character bridge records. If your data file was created by running the English-to-metric conversion program, **MFINPUT.DAT** will already be created for you by the conversion. This file must be in sorted ascending order by STRUCTURE NUMBER and ITEM 5A for the Edit/Update program to work. **The file must be sorted EBCDIC and not ASCII**. If records from multiple States are in the file, the file must be sorted first by STATE CODE, then by STRUCTURE NUMBER and ITEM 5A.

(4) Modify the file **CFINPUT.DAT**. This file contains the control cards for the Edit/Update program. You need to modify the STATE CODE card. Change the ?? to your two-digit STATE CODE. If multiple States are processed enter 99 for STATE CODE. You may also wish to make other control card changes. Control card parameters and defaults are explained in Appendix B.

The Edit/Update is now ready to run.

2.2 Running the Edit/Update Program

(1) From the **C:\BRIDGE** subdirectory, type: **BREDIT**. If you have included **C:\BRIDGE** in your PATH statement in your AUTOEXEC.BAT file, you do not have to be in **C:\BRIDGE** to execute this command.

(2) When the program ends, the DOS prompt will reappear. Type **PEDIT** to print the output. This printed output will show any errors in your data. Also shown will be the parameters the program was run with, and totals for records read and records in error.

NOTE: The print files produced by this program are 133 characters wide, so be sure you are either using a wide printer or have set your printer to compressed print mode before typing **PEDIT**.

(3) If errors appear on the report you wish to correct, update any records in the input master file (**MFINPUT.DAT**), and go to step 1. This process is repeated until all the errors you wish to correct have been corrected. Then the output file (**MFOUTPUT.DAT**) is ready to be sent to FHWA.
The difference between the input file and the output file after running the Edit/Update program would be the ITEMS computed by the program. These are:

```
ITEM 67    - STRUCTURAL EVALUATION
ITEM 68    - DECK GEOMETRY
ITEM 69    - UNDERCLEARANCE EVALUATION
ITEM DT   - DEDUCT CODE*
ITEM STAT - STATUS*
ITEM SR   - SUFFICIENCY RATING*
```

* See description of these ITEMS in Appendix D.

2.3 Files Used by the Edit/Update Program

The following files are on the high-density 3 1/2" floppy diskette:

(1) LE21M02A.EXE - The Edit/Update program. Just type **BREDIT** to execute.

(2) BREDIT.BAT - The batch files for running the
& Edit/Update program. These files are set
(3) FILES.BAT to run the program from the **C:\BRIDGE** subdirectory. If you wish to work from another drive\directory, change all references in these two files to the new name.

(4) CFINPUT.DAT - This file contains the control cards needed to run the program. See pages B-5 and B-6 for further explanation of coding control cards. The STATE CODE card will have to be modified.

(5) FFINPUT.DAT - This was sent on your floppy as a blank file. If you choose to bypass editing any bridge ITEMS, this file is used to specify which ITEMS (see page B-5& B-8).

(6) PEDIT.BAT - The batch file for printing the output print files, EFPRINT, PFPRINT, FFPRINT, and NFPRINT. Each of these files are described below. This file is set to print files from the **C;\BRIDGE** subdirectory. If you wish to print from another drive\directory, change all references in this file.

(7) COBLIB.DLE - These are system modules.
&
(8) COBFP87.DLE

The following files are output from the Edit/Update program.

(1) MFOUTPUT.DAT - The output master file. This file would be sent to FHWA after your last successful run of the Edit/Update program. When an Edit/Update has been run and corrections need to be made, these corrections would be made to MF**IN**PUT.DAT, not this file.

(2) EFPRINT.PRT - The error print file will contain all the non-fatal errors in your file (see Appendix E for an example). This will be the bulk of your printed output.

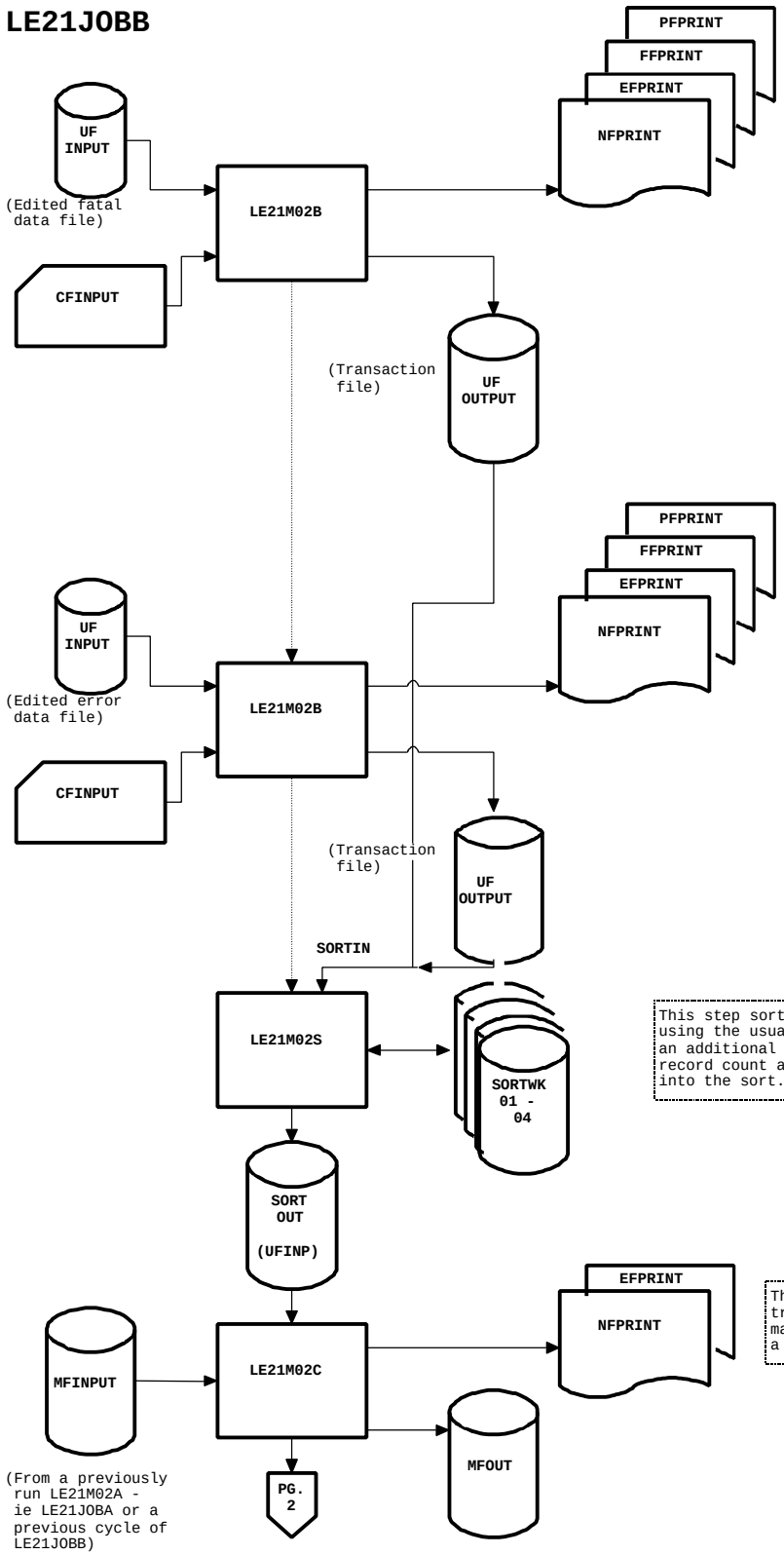
(3) FFPRINT.PRT - The fatal error print file will contains any records that had a problem with the STATE CODE, STRUCTURE NUMBER, ITEM 5A, or were duplicate records. This file will probably be empty most of the time.

(4) PFPRINT.PRT - This file lists all the parameters used by the program.

(5) NFPRINT.PRT - This file lists summary totals produced by the program.

APPENDIX A

LE21J0BB

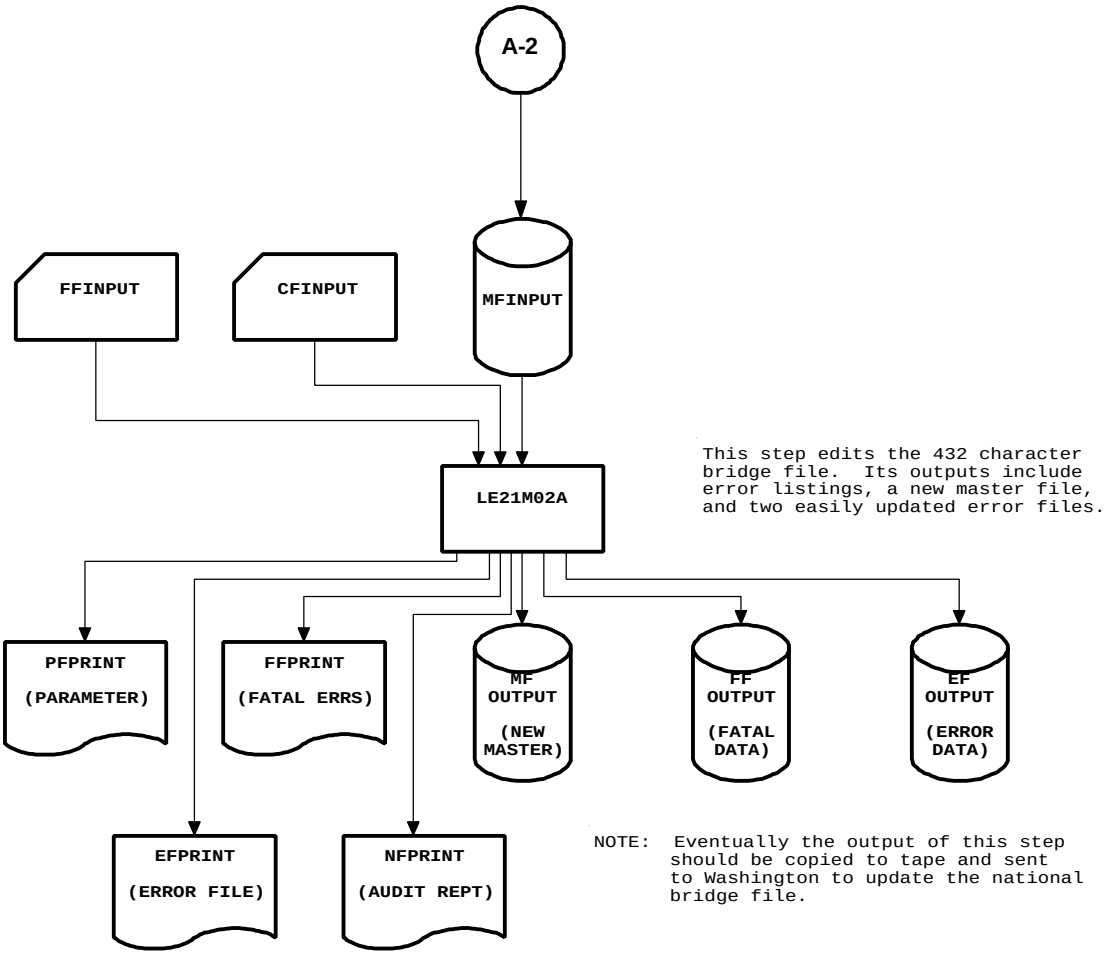


The first two steps of this job take the fatal data file and then the non-fatal error data file and create transaction records to update the master file.

This step sorts the transactions using the usual bridge sort key and an additional field based on the record count as the transaction went into the sort.

This step applies the transactions against the master file and creates a new master file.

LE21J0BB


A-2
FFINPUT
CFINPUT
MFINPUT
LE21M02A
This step edits the 432 character bridge file. Its outputs include error listings, a new master file, and two easily updated error files.
PFPRINT
(PARAMETER)
FFPRINT
(FATAL ERRS)
MF OUTPUT
(NEW MASTER)
FF OUTPUT
(FATAL DATA)
EF OUTPUT
(ERROR DATA)
EFPRINT
(ERROR FILE)
NFPRINT
(AUDIT REPT)
NOTE: Eventually the output of this step should be copied to tape and sent to Washington to update the national bridge file.

APPENDIX B

Below is JCL to run the Edit/Update program. There are two JCL streams:

(1) **LE21JOBA** is used the first time you run the Edit/Update and consists of the Edit/Update program only. After LE21JOBA is run once, an 80 byte error file is created (2 files if there are fatal errors). This file can be updated using a text editor.

(2) To apply any changes made to the error file(s), you would run jobstream **LE21JOBB** consisting of the reformat program, the merge program, the sort program, and another run of the Edit/Update program. You would continue re-running LE21JOBB until all errors you wish to correct are corrected.

NOTE: If your State already has a way to update their bridge information, then use of the output 80 byte error file would not be necessary. In this case, after correcting errors sighted on the error report, you would simply rerun just the Edit/Update (jobstream LE21JOBA) each time. When this is done, remember to change the disposition field for MFOUTPUT, EFOUTPUT, and FFOUTPUT from DISP=(NEW,CATLG,DELETE) to DISP=SHR **after** the first run.

LE21JOBA

```
//STEP1    EXEC PGM=SORT,REGION=1024K
//SORTIN   DD  DSN=unsorted.master,DISP=(OLD,DELETE,DELETE)
//SORTOUT  DD  DSN=sorted.bridge.master,UNIT=(DISK),
//             DCB=(LRECL=432,BLKSIZE=8640,RECFM=FB),
//             SPACE=(CYL,(5,5),RLSE),
//             DISP=(NEW,CATLG,CATLG)
//SORTWK01 DD  DSN=&&WRKAWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK02 DD  DSN=&&WRKBWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK03 DD  DSN=&&WRKCWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK04 DD  DSN=&&WRKDWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SYSOUT   DD  SYSOUT=*
//SYSIN    DD  *
  SORT FIELDS=(1,19,CH,A)
/*

//STEP2    EXEC PGM=LE21M02A,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER          ITEM       delimiter.item.char
      DELIMITER DATA     END        delimiter.data.end.char
      DELIMITER DATA     START      delimiter.data.start.char
      DELIMITER RECORD   END        delimiter.record.end.char
      TYPE       OF      EDIT       type.of.edit
      LINES      PER     PAGE       lines.per.page.nbr
      ERRORS     PER     REPORT     errors.per.report.nbr
      STATE              CODE       state.code
//FFINPUT  DD  *
bypass.item.numbers
```

```
//MFINPUT  DD  DSN=&&NEWMAST,DISP=(OLD,DELETE,KEEP)
//MFOUTPUT DD  DSN=bridge.master,UNIT=DISK,
//              DISP=(NEW,CATLG,DELETE),SPACE=(CYL,(5,5),RLSE),
//              DCB=(RECFM=FB,LRECL=432,BLKSIZE=8640)
//FFOUTPUT DD  DSN=fatal.data.bridge.file,
//             DSN=fatal.data.bridge.file1,UNIT=DISK,
//             DISP=(NEW,CATLG,DELETE),SPACE=(TRK,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)
//EFOUTPUT DD  DSN=error.data.bridge.file,
//             DSN=error.data.bridge.file1,UNIT=DISK,
//             DISP=(NEW,CATLG,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
```

LE21JOBB

```
//* STEP1 CREATES 433 CHARACTER MASTER FILE UPDATE TRANSACTION
//* BASED ON THE MANUALLY UPDATED FATAL ERROR FILE.

//STEP1   EXEC PGM=LE21M02B,REGION=1200K,TIME=3
//STEPLIB DD   DSN=your.loadlib,DISP,SHR
//CFINPUT DD   *
      DELIMITER         ITEM       delimiter.item.char
      DELIMITER DATA    END        delimiter.data.end.char
      DELIMITER DATA    START      delimiter.data.start.char
      DELIMITER RECORD  END        delimiter.record.end.char
      LINES     PER     PAGE       lines.per.page.nbr
      ERRORS    PER     REPORT     errors.per.report.nbr
      STATE             CODE       state.code
//UFINPUT  DD  DSN=fatal.data.bridge.file,DISP=SHR
//UFOUTPUT DD  DSN=&&UPDATE1,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8066)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
//*
//* STEP2 CREATES 433 CHARACTER MASTER FILE UPDATE TRANSACTIONS
//* BASED ON THE MANUALLY UPDATED NON-FATAL ERROR FILE.
//*
//STEP2    EXEC PGM=LE21M02B,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER         ITEM       delimiter.item.char
      DELIMITER DATA    END        delimiter.data.end.char
      DELIMITER DATA    START      delimiter.data.start.char
      DELIMITER RECORD  END        delimiter.record.end.char
```

```
      LINES     PER     PAGE       lines.per.page.nbr
      ERRORS    PER     REPORT     errors.per.report.nbr
      STATE             CODE       state.code
//UFINPUT  DD  DSN=error.data.bridge.file,DISP=SHR
//UFOUTPUT DD  DSN=&&UPDATE2,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8660)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*

//* STEP3 SORTS THE 433 CHARACTER FILE TO ENSURE TRANSACTION
//* FILE IN ASCENDING ORDER BY ITEM1, ITEM8, ITEM5A

//STEP3    EXEC PGM=LE21M02S,REGION=1024K
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//SORTIN   DD  DSN=&&UPDATE1,DISP=(OLD,DELETE,KEEP)
//         DD  DSN=&&UPDATE2,DISP=(OLD,DELETE,KEEP)
//SORTOUT  DD  DSN=&&SORTOUT,DISP=(NEW,PASS,DELETE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8660),
//             UNIT=DISK,SPACE=(CYL,(5,5),RLSE)
//SORTWK01 DD  DSN=&&WRKAWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK02 DD  DSN=&&WRKBWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK03 DD  DSN=&&WRKCWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK04 DD  DSN=&&WRKDWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SYSOUT   DD  SYSOUT=*

//* STEP4 TAKES THE INPUT TRANSACTIONS AND CREATES AN UPDATED
//* MASTER.

//STEP4    EXEC PGM=LE21M02C,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//MFINPUT  DD  DSN=bridge.master,DISP=SHR
//UFINP    DD  DSN=&&SORTOUT,DISP=(OLD,DELETE,KEEP)
//MFOUT    DD  DSN=&&NEWMAST,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=432,BLKSIZE=8640)
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
```

```
//* STEP5 EDITS THE UPDATED MASTER FILE.  IT OUTPUTS ERROR
//* REPORTS, 80 BYTE RECORDS WHICH CAN BE MANUALLY UPDATED
//* (SEE LE21JOBA), AND ALSO CREATES A NEW MASTER FILE.

//STEP5    EXEC PGM=LE21M02A,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER         ITEM       delimiter.item.char
      DELIMITER DATA    END        delimiter.data.end.char
      DELIMITER DATA    START      delimiter.data.start.char
      DELIMITER RECORD  END        delimiter.record.end.char
      TYPE      OF      EDIT       type.of.edit
      LINES     PER     PAGE       lines.per.page.nbr
      ERRORS    PER     REPORT     errors.per.report.nbr
      STATE             CODE       state.code
//FFINPUT  DD  *
bypass.item.numbers
//MFINPUT  DD  DSN=&&NEWMAST,DISP=(OLD,DELETE,KEEP)
//MFOUTPUT DD  DSN=bridge.master,DISP=SHR
//FFOUTPUT DD  DSN=fatal.data.bridge.file,DISP=SHR
//EFOUTPUT DD  DSN=error.data.bridge.file,DISP=SHR
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
//
```

where:

your.loadlib	Load library used when Edit/Update programs are compiled and, optionally, any additional load libraries necessary for the site.
optional.additional.info	Additional JCL may be needed if using an unlabeled input tape, such as a LABEL statement.
unsorted.bridge.master	DSN of 432-character bridge master before being sorted.
sorted.bridge.master	DSN of 432-character bridge master after being sorted in ITEM 1, ITEM 8, ITEM 5A order.
delimiter.item.char	Tells program where the next ITEM information is.
delimiter.data.end.char **delimiter.data.start.char**	Tells program where actual value for an ITEM begins and ends. Start character can be the same or different. Recommendation is to use \ for both.

delimiter.record.end	Tells program where the next record begins.
type.of.edit	Specify which type of edits to run. The four (4) types of runs are: ITEM (or I) for individual item edits. CROSSCHECK (or C) for crosscheck edits. REASONABLENESS (or R) for only reasonableness edits. FINAL (or F) to combine all types of edits. This option should be used before sending tape to Washington Headquarters Office. **NOTE:** More than one TYPE OF EDIT card may be submitted for a run. For example, ITEM and CROSSCHECK edits can be performed and omitting the REASONABLENESS edits. Code one type.of.edit per card.
lines.per.page.nbr	Maximum number of printed lines per page for error listing reports.
errors.per.report.nbr	Maximum number of errors allowed on a run. If this number is exceeded, the edit program will stop running. To view all errors, code 99999.
state.code	Two (2) digit State code. Use 99 for multiple States.
bypass.item.numbers	Tells edit program which items **not** to edit. Specify by coding "I" followed by a blank, then the ITEM NUMBER. Code one ITEM per card.
bridge.master	New, 432-character master output from edit program.
fatal.data.bridge.file	Error file containing records with fatal errors, i.e., those involving ITEM 1, ITEM 8, or ITEM 5A.
error.data.bridge.file	Error file containing records with non-fatal errors.

Those agencies with computer systems running under something other than OS/MVS will need to develop their own JCL.

LE21JOBA EXAMPLE

```
//* SORT THE 432 CHARACTER FILE TO ENSURE MASTER FILE IN
//* ASCENDING ORDER BY ITEM1, ITEM8, ITEM5A

//STEP1    EXEC PGM=SORT,REGION=1024K
//SORTIN   DD  DSN=unsorted.master,DISP=(OLD,DELETE,DELETE)
//SORTOUT  DD  DSN=sorted.bridge.master,UNIT=(DISK),
//             DCB=(LRECL=432,BLKSIZE=8640,RECFM=FB),
//             SPACE=(CYL,(5,5),RLSE),
//             DISP=(NEW,CATLG,CATLG)
//SORTWK01 DD  DSN=&&WRKAWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK02 DD  DSN=&&WRKBWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK03 DD  DSN=&&WRKCWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK04 DD  DSN=&&WRKDWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SYSOUT   DD  SYSOUT=*
//SYSIN    DD  *
  SORT FIELDS=(1,19,CH,A)
/*
//* THE FOLLOWING STEP EDITS THE SORTED MASTER FILE AND CREATES
//* ERROR LISTINGS AND EDITABLE ERROR FILES (FATAL AND NON-
//* FATAL ERRORS).  THIS STEP ALSO CREATES A NEW MASTER FILE.
//STEP2    EXEC PGM=LE21M02A,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER          ITEM        ;
      DELIMITER DATA     END         \
      DELIMITER DATA     START       \
      DELIMITER RECORD   END         :
      TYPE      OF       EDIT        ITEM
      TYPE      OF       EDIT        C
      LINES     PER      PAGE        53
      ERRORS    PER      REPORT      99999
      STATE              CODE        13
//FFINPUT  DD  *
//MFINPUT  DD  DSN=sorted.bridge.master,DISP=SHR
//MFOUTPUT DD  DSN=bridge.master,UNIT=DISK,
//             DISP=(NEW,CATLG,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=432,BLKSIZE=8640)
//FFOUTPUT DD  DSN=fatal.data.bridge.file,UNIT=DISK,
//             DISP=(NEW,CATLG,DELETE),SPACE=(TRK,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)
//EFOUTPUT DD  DSN=error.data.bridge.file,UNIT=DISK,
//             DISP=(NEW,CATLG,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=80,BLKSIZE=4000)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
//
```

LE21JOBB EXAMPLE

```
//* STEP1 CREATES 401 CHARACTER MASTER FILE UPDATE TRANSACTION
//* BASED ON THE MANUALLY UPDATED FATAL ERROR FILE.
//*
//STEP1   EXEC PGM=LE21M02B,REGION=1200K,TIME=3
//STEPLIB DD   DSN=your.loadlib,DISP,SHR
//CFINPUT  DD  *
      DELIMITER          ITEM        ;
      DELIMITER DATA     END         \
      DELIMITER DATA     START       \
      DELIMITER RECORD   END         :
      LINES     PER      PAGE        53
      ERRORS    PER      REPORT      9999
      STATE              CODE        13
//UFINPUT  DD  DSN=fatal.data.bridge.file,DISP=SHR
//UFOUTPUT DD  DSN=&&UPDATE1,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8660)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*

//* STEP2 CREATES 401 CHARACTER MASTER FILE UPDATE TRANSACTIONS
//* BASED ON THE MANUALLY UPDATED NON-FATAL ERROR FILE.

//STEP2    EXEC PGM=LE21M02B,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER          ITEM        ;
      DELIMITER DATA     END         \
      DELIMITER DATA     START       \
      DELIMITER RECORD   END         :
      LINES     PER      PAGE        53
      ERRORS    PER      REPORT      99999
      STATE              CODE        13
//UFINPUT  DD  DSN=error.data.bridge.file,DISP=SHR
//UFOUTPUT DD  DSN=&&UPDATE2,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8660)
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
```

```
//* STEP3 SORTS THE 401 CHARACTER FILE TO ENSURE TRANSACTION
//* FILE IN ASCENDING ORDER BY ITEM1, ITEM8, ITEM5A

//STEP3    EXEC PGM=LE21M02S,REGION=1024K
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//SORTIN   DD  DSN=&&UPDATE1,DISP=(OLD,DELETE,KEEP)
//         DD  DSN=&&UPDATE2,DISP=(OLD,DELETE,KEEP)
//SORTOUT  DD  DSN=&&SORTOUT,DISP=(NEW,PASS,DELETE),
//             DCB=(RECFM=FB,LRECL=433,BLKSIZE=8660),
//             UNIT=DISK,SPACE=(CYL,(5,5),RLSE)
//SORTWK01 DD  DSN=&&WRKAWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK02 DD  DSN=&&WRKBWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK03 DD  DSN=&&WRKCWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SORTWK04 DD  DSN=&&WRKDWORK,UNIT=SYSDA,
//             SPACE=(CYL,(10,5))
//SYSOUT   DD  SYSOUT=*

//* STEP4 TAKES THE INPUT TRANSACTIONS AND CREATES AN UPDATED
//* MASTER.

//STEP4    EXEC PGM=LE21M02C,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//MFINPUT  DD  DSN=bridge.master,DISP=SHR
//UFINP    DD  DSN=&&SORTOUT,DISP=(OLD,DELETE,KEEP)
//MFOUT    DD  DSN=&&NEWMAST,UNIT=DISK,
//             DISP=(NEW,PASS,DELETE),SPACE=(CYL,(5,5),RLSE),
//             DCB=(RECFM=FB,LRECL=432,BLKSIZE=8640)
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*

//* STEP5 EDITS THE UPDATED MASTER FILE.  IT OUTPUTS ERROR
//* REPORTS, AND 80 BYTE RECORDS WHICH CAN BE MANUALLY UPDATED
//* AND PROCESSED BACK THRU LE21JOBB.

//STEP5    EXEC PGM=LE21M02A,REGION=1200K,TIME=3
//STEPLIB  DD  DSN=your.loadlib,DISP=SHR
//CFINPUT  DD  *
      DELIMITER          ITEM        ;
      DELIMITER DATA     END         \
      DELIMITER DATA     START       \
      DELIMITER RECORD   END         :
      TYPE      OF       EDIT        FINAL
      TYPE      OF       EDIT        C
      LINES     PER      PAGE        53
      ERRORS    PER      REPORT      10
      STATE              CODE        13
//FFINPUT  DD  *
I 96
I 114
//MFINPUT  DD  DSN=&&NEWMAST,DISP=(OLD,DELETE,KEEP)
```

```
                //MFOUTPUT DD  DSN=bridge.master,DISP=SHR
//FFOUTPUT DD  DSN=fatal.data.bridge.file,DISP=SHR
//EFOUTPUT DD  DSN=error.data.bridge.file,DISP=SHR
//PFPRINT  DD  SYSOUT=*
//FFPRINT  DD  SYSOUT=*
//EFPRINT  DD  SYSOUT=*
//NFPRINT  DD  SYSOUT=*
//SYSOUT   DD  SYSOUT=*
//SYSDBOUT DD  SYSOUT=*
//
```

APPENDIX C

DATA ELEMENT LISTING

ITEM NO	ITEM NAME	ITEM POSITION	ITEM LENGTH/TYPE
1	State Code	1 - 3	3/N
8	Structure Number	4 - 18	15/AN
5	Inventory Route	19 - 27	9/AN
5A	Record Type	19	1/AN
5B	Route Signing Prefix	20	1/N
5C	Designated Level of Service	21	1/N
5D	Route Number	22 - 26	5/AN
5E	Directional Suffix	27	1/N
2	Highway Agency District	28 - 29	2/AN
3	County (Parish) Code	30 - 32	3/N
4	Place Code	33 - 37	5/N
6	Features Intersected	38 - 62	25/AN
6A	Features Intersected	38 - 61	24/AN
6B	Critical Facility Indicator	62	1/AN
7	Facility Carried By Structure	63 - 80	18/AN
9	Location	81 - 105	25/AN
10	Inventory Rte, Min Vert Clearance	106 - 109	4/N
11	Kilometerpoint	110 - 116	7/N
12	Base Highway Network	117	1/N
13	Inventory Route, Subroute Number	118 - 129	12/AN
13A	LRS Inventory Route	118 - 127	10/AN
13B	Subroute Number	128 - 129	2/N
16	Latitude	130 - 137	8/N
17	Longitude	138 - 146	9/N
19	Bypass/Detour Length	147 - 149	3/N
20	Toll	150	1/N
21	Maintenance Responsibility	151 - 152	2/N
22	Owner	153 - 154	2/N
26	Functional Class Of Inventory Rte.	155 - 156	2/N
27	Year Built	157 - 160	4/N
28	Lanes On/Under Structure	161 - 164	4/N
28A	Lanes On Structure	161 - 162	2/N
28B	Lanes Under Structure	163 - 164	2/N
29	Average Daily Traffic	165 - 170	6/N
30	Year Of Average Daily Traffic	171 - 174	4/N
31	Design Load	175	1/N
32	Approach Roadway Width	176 - 179	4/N
33	Bridge Median	180	1/N
34	Skew	181 - 182	2/N
35	Structure Flared	183	1/N

ITEM NO	ITEM NAME	ITEM POSITION	ITEM LENGTH/TYPE
36	Traffic Safety Features	184 - 187	4/AN
36A	Bridge Railings	184	1/AN
36B	Transitions	185	1/AN
36C	Approach Guardrail	186	1/AN
36D	Approach Guardrail Ends	187	1/AN
37	Historical significance	188	1/N
38	Navigation Control	189	1/AN
39	Navigation Vertical Clearance	190 - 193	4/N
40	Navigation Horizontal Clearance	194 - 198	5/N
41	Structure Open/Posted/Closed	199	1/AN
42	Type Of Service	200 - 201	2/N
42A	Type of Service On Bridge	200	1/N
42B	Type of Service Under Bridge	201	1/N
43	Structure Type, Main	202 - 204	3/N
43A	Kind of Material/Design	202	1/N
43B	Type of Design/Construction	203 - 204	2/N
44	Structure Type, Approach Spans	205 - 207	3/N
44A	Kind of Material/Design	205	1/N
44B	Type of Design/Construction	206 - 207	2/N
45	Number Of Spans In Main Unit	208 - 210	3/N
46	Number Of Approach Spans	211 - 214	4/N
47	Inventory Rte Total Horz Clearance	215 - 217	3/N
48	Length Of Maximum Span	218 - 222	5/N
49	Structure Length	223 - 228	6/N
50	Curb/Sidewalk Widths	229 - 234	6/N
50A	Left Curb/Sidewalk Width	229 - 231	3/N
50B	Right Curb/Sidewalk Width	232 - 234	3/N
51	Bridge Roadway Width Curb-To-Curb	235 - 238	4/N
52	Deck Width, Out-To-Out	239 - 242	4/N
53	Min Vert Clear Over Bridge Roadway	243 - 246	4/N
54	Minimum Vertical Underclearance	247 - 251	5/AN
54A	Reference Feature	247	1/AN
54B	Minimum Vertical Underclearance	248 - 251	4/N
55	Min Lateral Underclear On Right	252 - 255	4/AN
55A	Reference Feature	252	1/AN
55B	Minimum Lateral Underclearance	253 - 255	3/N
56	Min Lateral Underclear On Left	256 - 258	3/N
58	Deck	259	1/AN
59	Superstructure	260	1/AN
60	Substructure	261	1/AN
61	Channel/Channel Protection	262	1/AN
62	Culverts	263	1/AN

ITEM NO	ITEM NAME	ITEM POSITION	ITEM LENGTH/TYPE
63	Method Used To Determine Operating Rating	264	1/N
64	Operating Rating	265 - 267	3/N
65	Method Used To Determine Inventory Rating	268	1/N
66	Inventory Rating	269 - 271	3/N
67	Structural Evaluation	272	1/AN
68	Deck Geometry	273	1/AN
69	Underclear, Vertical & Horizontal	274	1/AN
70	Bridge Posting	275	1/N
71	Waterway Adequacy	276	1/AN
72	Approach Roadway Alignment	277	1/AN
75	Type of Work	278 - 280	3/N
75A	Type of Work Proposed	278 - 279	2/N
75B	Work Done By	280	1/AN
76	Length Of Structure Improvement	281 - 286	6/N
90	Inspection Date	287 - 290	4/N
91	Designated Inspection Frequency	291 - 292	2/N
92	Critical Feature Inspection	293 - 301	9/AN
92A	Fracture Critical Details	293 - 295	3/AN
92B	Underwater Inspection	296 - 298	3/AN
92C	Other Special Inspection	299 - 301	3/AN
93	Critical Feature Inspection Dates	302 - 313	12/AN
93A	Fracture Critical Details Date	302 - 305	4/AN
93B	Underwater Inspection Date	306 - 309	4/AN
93C	Other Special Inspection Date	310 - 313	4/AN
94	Bridge Improvement Cost	314 - 319	6/N
95	Roadway Improvement Cost	320 - 325	6/N
96	Total Project Cost	326 - 331	6/N
97	Year Of Improvement Cost Estimate	332 - 335	4/N
98	Border Bridge	336 - 340	5/AN
98A	Neighboring State Code	336 - 338	3/AN
98B	Percent Responsibility	339 - 340	2/N
99	Border Bridge Structure Number	341 - 355	15/AN
100	STRAHNET Highway Designation	356	1/N
101	Parallel Structure Designation	357	1/AN
102	Direction Of Traffic	358	1/N
103	Temporary Structure Designation	359	1/AN
104	Highway System Of Inventory Route	360	1/N
105	Federal Lands Highways	361	1/N
106	Year Reconstructed	362 - 365	4/N
107	Deck Structure Type	366	1/AN
108	Wearing Surface/Protective System	367 - 369	3/AN
108A	Type of Wearing Surface	367	1/AN
108B	Type of Membrane	368	1/AN
108C	Deck Protection	369	1/AN

ITEM NO	ITEM NAME	ITEM POSITION	ITEM LENGTH/TYPE
109	AVERAGE DAILY TRUCK TRAFFIC	370 - 371	2/N
110	DESIGNATED NATIONAL NETWORK	372	1/N
111	PIER/ABUTMENT PROTECTION	373	1/N
112	NBIS BRIDGE LENGTH	374	1/AN
113	SCOUR CRITICAL BRIDGES	375	1/AN
114	FUTURE AVERAGE DAILY TRAFFIC	376 - 381	6/N
115	YEAR OF FUTURE AVG DAILY TRAFFIC	382 - 385	4/N
116	MINIMUM NAVIGATION VERTICAL CLEARANCE VERTICAL LIFT BRIDGE	386 - 389	4/N
---	Washington Headquarters Use	390 - 427	
n/a	Asterisk Field in SR	428	1/AN
SR	SUFFICIENCY RATING (select from last 4 positions only)	429 - 432	4/N

NOTE: Values for ITEMS 67, 68, 69, DEDUCT CODE, STATUS, and SUFFICIENCY RATING are calculated and inserted by the Edit/Update Program.

APPENDIX D

COMPUTATION OF ITEMS DEDUCT, STATUS, and SUFFICIENCY RATING

Item DT - Deduct Code — 2 digits

The Deduct Code is a 2-digit code composed of 2 segments.

Segment	Description	Length
DT1	Deduct Code - Part 1	1 digit
DT2	Deduct Code - Part 2	1 digit

The Deduct Code is initialized by the Edit/Update program when the Records are entered into the database. Subsequent updates may affect the value which is stored. The FMIS data is crossmatched with the NBI on a monthly basis to generate the K and L deduct codes. The following codes are used for the first digit (ITEM DT1) - note that codes A through P are for Structurally Deficient (SD) or Functionally Obsolete (FO) bridges. The SD and FO Items are 58, 59, 60, 62, 67, 68, 69, 71 and 72.

Code	Description
A	SD or FO bridge not assigned to any other code.
B	Item 68 = 0, 1, 2, or 3; all other SD and FO items are nondeficient; and Item 51 > or = 20.7 and Item 29 > 35000.
C	Item 49 is coded > or = 1524 meters long.
D	(not currently used)
E	Item 20 = 2 - Toll Road.
F	Only 1 SD or FO Item is coded 0 and all the rest are nondeficient, and Item 41 not = K.
G	ITEM 67 = 0, 1, 2, or 3; all other SD and FO Items are nondeficient; and Item 64 > or = 32.4 and Item 41 not coded B, D, E, K, P, or R.
H	Item 72 = 0, 1, 2, or 3; all other SD and FO Items are nondeficient; and Item 49 > 182.9 meters long.
I	Item 68 = 0, 1, 2, or 3; all other SD and FO items are nondeficient and

Item 29 - ADT	with	ITEM 51 BRIDGE ROADWAY WIDTH CURB-TO-CURB
< or = 250		> or = 6.1 M
< or = 750		> or = 6.7 M
< or = 2700		> or = 7.3 M
< or = 5000		> or = 9.1 M
< or = 9000		> or = 13.4 M
< or = 35000		> or = 17.1 M

J Items 42A and 42B indicate a highway over a highway and Item 49 > 609.6 meters long.

K Bridges which have construction funds obligated from the HBRRP. Includes discretionary and accelerated bridge projects regardless of program phase.

L Bridges which have construction funds obligated from other sources.

M (not currently used)

N Item 52 coded > or = 45.7 meters wide and Item 43B = 19.

O (not currently used)

P Item 69 = 0, 1, 2, or 3; all other SD and FO Items are nondeficient and for bridges over highways - 54A = H:
Item 54B > or = 4.26 M and
If ADT (below bridge) > or = 250 and
Item 55B > or = 1.8 M and
Item 56 > or = 0.6 M or
If ADT (below bridge) < 250 and
Item 55B > or = 1.3 M and
Item 56 > or = 0.4 M
or for bridges over railroads - Item 54A = R:
Item 54B > or = 6.7 M and
Item 55B > or = 2.4 M

Q thru W and Y (not currently used)

X Washington Headquarters manual deduct because of errors in data

Z Those records which do not have a highway bridge code in Item 42A and those records for highway bridges which are neither SD or FO.

The second digit of Deduct Code remains blank except when the FMIS crossmatch program inserts an asterisk along with the code K or L which indicates that the code may not be overwritten by future Edit/Update computer runs.

Item STAT - Status 1 digit

The Status of a bridge is an indication of whether it is Structurally Deficient or Functionally Obsolete. This code is generated by the Edit/Update program when the records are entered or updated in the database. The following codes are used:

Code	Description
1	Structurally Deficient
2	Functionally Obsolete
0	Not Deficient
N	Not Applicable

Item SR - Sufficiency Rating (XXX.X) 4 digits

The Sufficiency Rating of each bridge is calculated by the Edit/Update program when the Records are entered or updated in the database. The range of 0 to 100.0 (to the nearest tenth) is stored as a 4-digit number with an assumed decimal point. The Sufficiency rating is calculated only for valid highway bridges (5A = 1 and 42A = 1, 4-8).

An asterisk is inserted in the field preceding the SR value if any Item used to calculate the Sufficiency Rating does not pass a validity check. At this time all culverts which have the Curb-to-Curb Roadway Width (Item 51) coded 0000 will have an asterisk.

APPENDIX E

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0001 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 1294	- ITEM 90 IS MORE THAN 3 YEARS OLD.

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0003 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
ITEM EDIT	ITEM 97	= 1990	- THE YEAR OF THE COST ESTIMATE IS NOT WITHIN RANGE.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 0494	- ITEM 90 IS MORE THAN 3 YEARS OLD.

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0019 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 0394	- ITEM 90 IS MORE THAN 3 YEARS OLD.
REASONABLENESS	ITEM 93A	= 0794	- ITEM 92A = Y & ITEM 93A IS OLDER THAN THE INSP. FREQ.
REASONABLENESS	ITEM 93C	= 0395	- ITEM 92C = Y & ITEM 93C IS OLDER THAN THE INSP. FREQ.
REASONABLENESS	ITEM 59	= 2	- 70 = 5 -- SO ITEM 59 MUST BE GREATER THAN 3.

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0019-1(LOW) ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
ITEM EDIT	ITEM 97	= 1990	- THE YEAR OF THE COST ESTIMATE IS NOT WITHIN RANGE.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 0394	- ITEM 90 IS MORE THAN 3 YEARS OLD.
REASONABLENESS	ITEM 26	= 12	- ITEM 104 = 0,ITEM 26 SHOULD=06,07,08,09,14,16,17 OR 19

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0026-1 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
ITEM EDIT	ITEM 97	= 1988	- THE YEAR OF THE COST ESTIMATE IS NOT WITHIN RANGE.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 0394	- ITEM 90 IS MORE THAN 3 YEARS OLD.
REASONABLENESS	ITEM 93A	= 1294	- ITEM 92A = Y & ITEM 93A IS OLDER THAN THE INSP. FREQ.

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0027 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 0594	- ITEM 90 IS MORE THAN 3 YEARS OLD.

RECORD KEY IS: STATE/REGION = 999 STRUCTURE NUMBER = 0029 ITEM 5A = 1

TYPE OF CHECK	ITEM	DATA VALUE	REMARKS/ERROR MESSAGES.
ITEM EDIT	ITEM 97	= 1988	- THE YEAR OF THE COST ESTIMATE IS NOT WITHIN RANGE.
REASONABLENESS	ITEM 30	= 1992	- ITEM 30 IS MORE THAN 4 YEARS OLD.
REASONABLENESS	ITEM 90	= 1290	- ITEM 90 IS MORE THAN 3 YEARS OLD.